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OIL WEEKLY

FOR OIL AND GAS PRODUCERS AND PIPE LINE MEN

THE WEEK'S NEWS INTERPRETED

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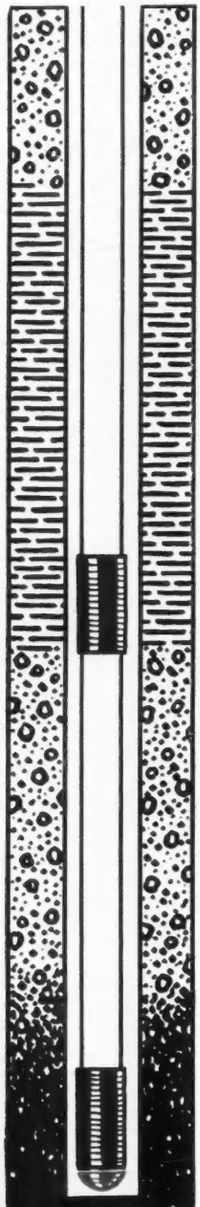
VOLUME 31 MAY 25, 1936 NUMBER 11



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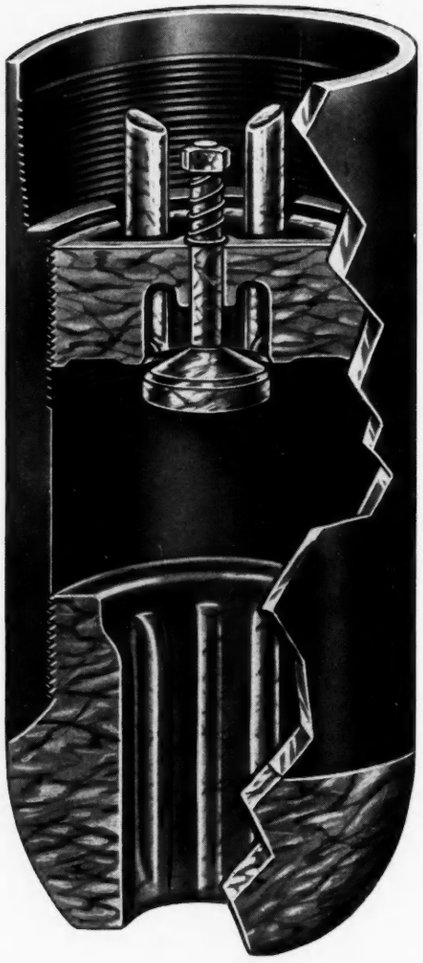

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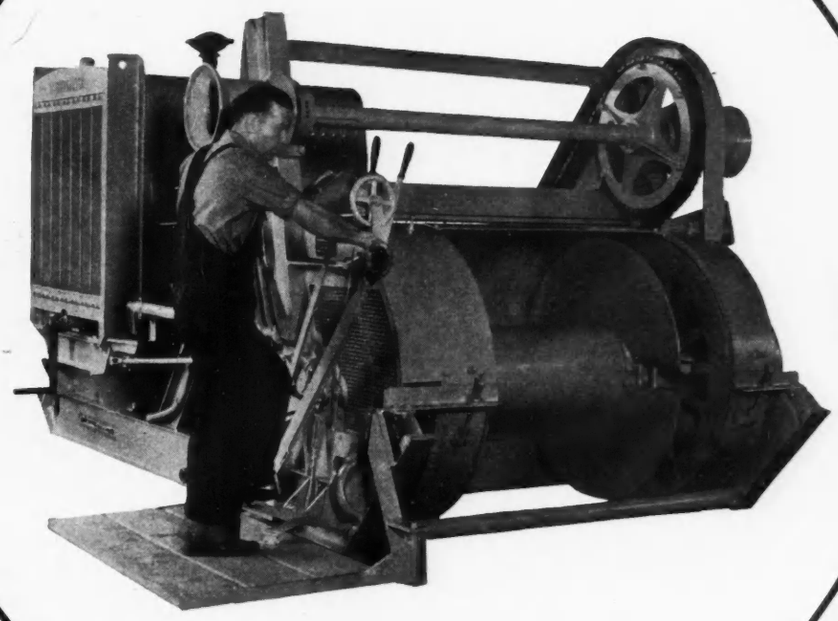

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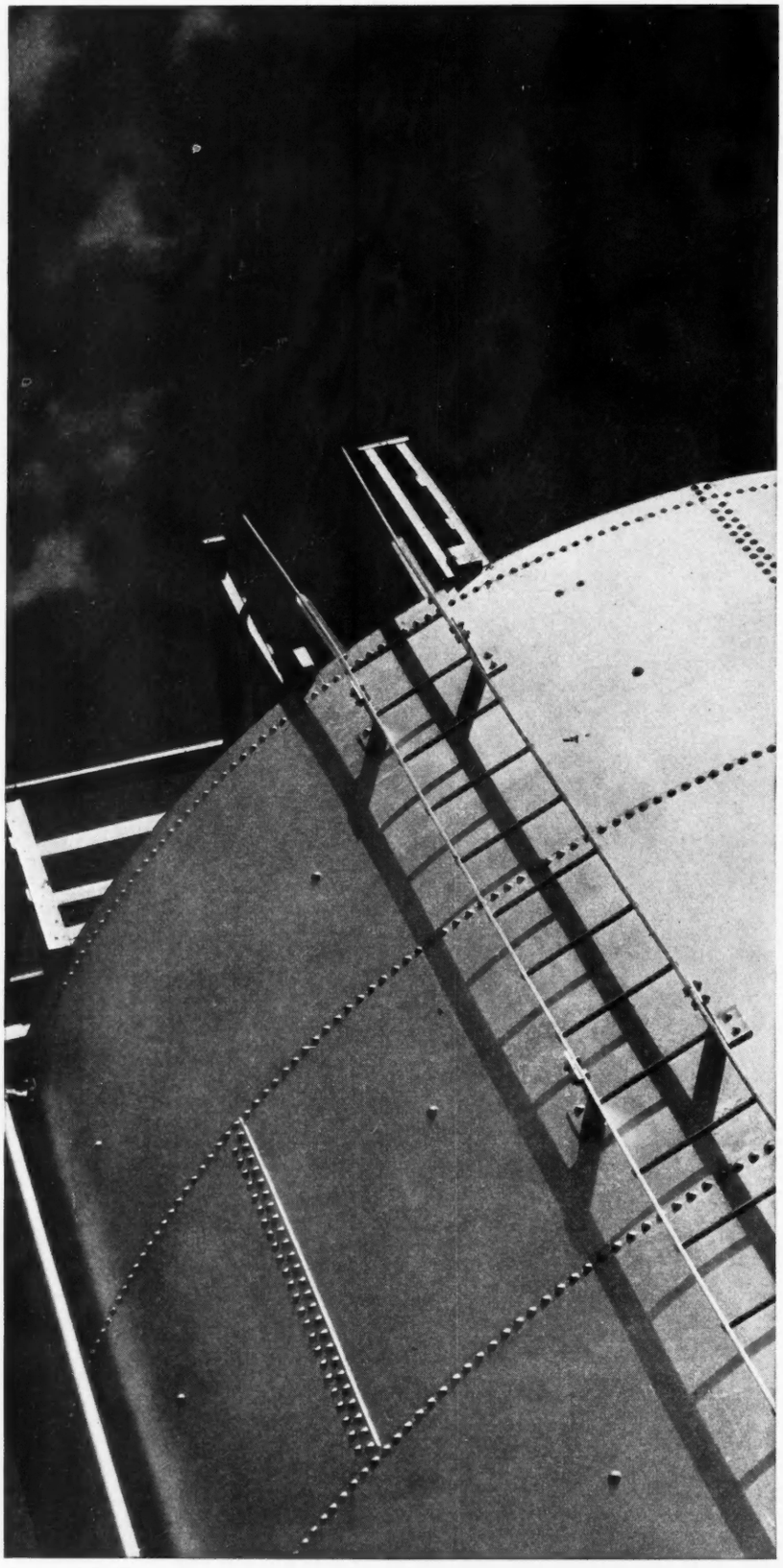

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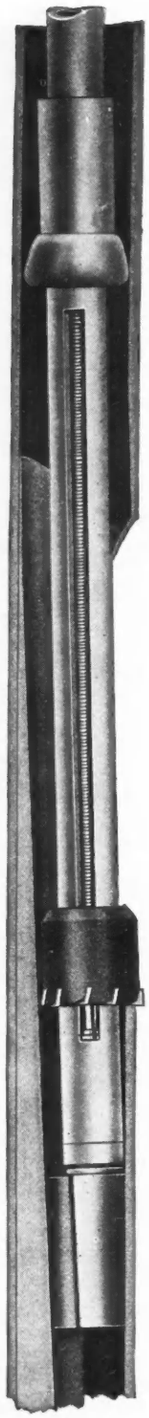
REARIN' TO GO!----



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THE OIL WEEKLY

FOR OIL AND GAS PRODUCERS
AND PIPE LINE MEN

ENGINEERING NEWS STATISTICS

WARREN L. BAKER, Editor.

. . . this Week

THE national capital last week was furnishing various developments of importance to the oil industry. Among these were the hearings held by the House ways and means committee on the Disney oil bill, for taxing imports, and on the Boland bill, which goes further than the former and would tax all fuel oil, primarily as an aid to coal mining.

In the hearings on the Disney bill it was brought out that the purpose of the measure is to keep oil imports down to 4.5 percent of the domestic demand, so as to protect the domestic industry from imports of low-cost oil produced in foreign fields. It would be a stabilization measure for the industry, it was asserted. A congressman from an eastern industrial center opposed the bill, however, on the ground it would increase costs of fuel oil to his constituents.

While the Disney bill has been sponsored by groups of independent oil operators, it also has the support of the coal industry. The coal producers figure the proposed tax on imported fuel oil would result in higher selling prices for the domestic as well as the foreign fuel oil, and that these higher fuel oil prices would cause some consumers to turn from oil to coal for fuel.

SOME economic aspects of proration were discussed by John M. Lovejoy before the Independent Petroleum Association of America. He stated restriction of flush production is true conservation and will result in greater recovery at low cost. He believes that proration will be heavier in the future as new production is being developed faster than old wells are declining. Wide spacing and reservoir energy conservation were advocated as of great importance. Lovejoy also urged that the Bureau of Mines production recommendations be adhered to if the industry is not to suffer from overproduction. **Page 14.**

TWENTY thousand barrels of oil daily is not much as against three million, but that quantity at Rodessa is enough to cause a stir throughout the industry that is valued almost half of the national debt. At the moment things have been quieted by the customary court injunction and again we have the legal department in full action, and some of the stronger advocates of "state's rights" wishing that something could be done about a state whose politicians are committed to the idea that even temporary revenue from severance taxes is to be preferred to the general welfare of the oil industry.

COMPLETION with pressure equipment is a radical departure from early methods of rotary drilling, for which certain advantages are claimed both as regards the bottom of the hole and the surface. This method is in extensive use at Oklahoma City, and particularly in the new section where wells are being drilled in developed city areas and insured control of flow without waste is mandatory. The method has introduced new drilling equipment and new drilling technique. **Page 24.**

RECENT leasing by the state of Texas of submerged lands in bays adjacent to productive areas along the coast, and extension of development in lagoons and bays in South Louisiana, have centered interest of the industry and of people interested in protection of fish and natural beauty of those waters, in the pollution hazards of development off shore. How this work is being carried out is further evidence of the resourcefulness of the industry's engineers in meeting conditions. Despite the fact that two departments of government are interested—one in revenue and the other in fish conservation, with the former having most argument, there is and probably will continue a lot of divided opinion. In the meantime, oil producers are conducting operations in such manner as they hope will satisfy both sides. **Page 17.**

The Oil Man's Calendar

MAY 29–31	National Oil Scouts Association, Annual Meeting, Baker Hotel, Dallas, Texas.
JUNE 4– 5	American Petroleum Institute, Division of Production, Eastern District, Wm. Penn Hotel, Pittsburgh, Pennsylvania.
17–20	American Society of Mechanical Engineers, Dallas, Texas.
18–19	Pennsylvania Grade Crude Oil Association, State College, Pennsylvania.
JULY 31	Interstate Oil Compact Commission, Dallas, Texas.
NOV. 9–12	American Petroleum Institute, 17th Annual Meeting, Chicago, Illinois.

WHILE endorsing the Disney bill, the coal people even more actively support the Boland bill. Congressman Boland, author of the measure, is from Scranton in the heart of the Pennsylvania coal region, and he framed his bill strictly with the aim of benefiting the coal industry. While the Disney bill would tax only imported fuel oil, his measure would tax all fuel oil, including that produced in the United States. There would be a tax of 1 cent a gallon on all fuel oil used in the United States, and the bill would raise the tariff on imported fuel oil to 1½ cents a gallon.

In fostering his measure the Pennsylvania congressman said it has three purposes: to raise revenue; to conserve oil, a diminishing resource, in preference to coal, a virtually inexhaustible resource; and to promote greater employment, by encouraging coal mining instead of oil production, which requires relatively fewer workers.

TALCO in Texas promises some concern if its tendencies continue. The oil is not looked upon with too much favor by refiners—but it is oil and there may be quantities of it. The area has attracted some operators who handled small tracts in East Texas advantageously and already there are a lot of permits to drill on file. **Page 58.**

Exposition Record

ENTHUSIASM ENGENDERS PLANS FOR BIGGER SHOW IN TWO YEARS

TULSA.

THE greatest concentrated display of modern oil eld equipment came to a close May 23, with the conclusion of the Ninth International Petroleum Exposition, which was indeed a record-breaking show. Not only did attendance exceed the previous peak of slightly more than 150,000, but there were more firms exhibiting their products. Moreover, the machinery on display had far greater cash value than at any previous exhibit. Direct sales on the ground also were surprisingly high. In every respect the exposition may be said to have been exceedingly satisfactory.

The next exposition, which will be held in Tulsa in May, 1938, probably will be even larger and more successful. The enthusiasm aroused by the wonderful show in 1936 is certain to reflect favorably in future shows, and the Tenth International Petroleum Exposition no doubt will break attendance and display records. Additional firms will want to exhibit their products because of satisfactory results obtained this year. Furthermore, a larger attendance may be anticipated since oil companies realize more fully than ever the benefits obtainable by having their men see a composite picture of the latest in equipment design. One company executive after visiting the grounds early in the week wired his headquarters to send additional field men, and this one concern had more than 80 employees in attendance.

Although the management was not actively soliciting reservations for the 1938 exposition, many concerns went to the office and signed contracts for the next show. Since all the space on the grounds was sold for the 1936 exposition, directors will meet next week and draft plans for enlarging accommodations.

Directors of the exposition also announced that they were not considering holding the show oftener than every two years, and that they were not interested in sponsoring an exposition in any other locality than Tulsa.

It is probable that many additional associations of engineers and oil men will hold conventions during the 1938 exposition. Already plans were being discussed that may bring the World Oil Congress to Tulsa in either 1938 or 1940. This congress is meeting in Paris in June, 1937, and is sponsored by the Institution of Petroleum Technologists, which held its first American meeting during the past show.

During the two years since the previous exposition great advances have been made in the equipment used in every operation of the producing and pipe line divisions. Naturally, new and improved equipment was of greatest interest to visiting oil men. Moreover, a large percentage of the equipment was in operation. This gave prospective buyers an opportunity of studying the machinery in its running condition, and no doubt was due much credit for the unusual interest displayed by oil men in the exhibits. Elaborate settings were used by many concerns to display their equipment to the best advantage of the buyer.

Without question the Ninth International Petroleum Exposition was the largest and most interesting of any equipment display in history. There were the heaviest types of equipment and the smallest devices on the market among the displays of the 526 firms exhibiting more than $10,000,000 worth of machinery. All showed the latest engineering developments in design and construction.

The drilling division was of particular interest and included several complete rigs. There were rigs to demonstrate various styles in straight internal combustion engine-driven units and in engine-driven electric rigs. Likewise, the most modern steam rig and electric trends were shown. The number of drilling units on the grounds far exceeded any previous showing. Many of the units were mounted to afford greater portability, faster rigging up and dismantling for heavy equipment, which has been a field trend during the past year. Improvements in brakes, driving mechanism and control stood out along with the changes in prime movers, which offer greater power and flexibility without increasing the weight of the units. Most of the drilling units were self-contained, each including the necessary auxiliary to transmit the engine power to the rig.

Besides this rig power equipment there were many improved styles in such standard equipment as derricks, rotary tables, rotary hose, draw works, crown and traveling blocks, wire lines and tubular products. Besides the latest word in coring instruments, directional survey devices, directional drilling, drilling control boards and other specialties were shown. Equipment for handling cement and mud were exhibited in advanced types. There also were a number of portable mounted coring and drilling machines, many of which incorporate new designs and were capable of going to considerable depths.

Pumping equipment was another type that attracted considerable attention. Noteworthy were improved construction, lubrication devices and means of counterbalancing in both unit and jack equipment. A large number of units showed the application of the hydraulic principle. Pumping engines and drives, like those used for drilling, have advanced tremendously in the past two years. Many of the pumping units on display were of the twin-crank, self-contained style operated through reduction gears from both electric and internal combustion engines. The geared and bandwheel central power were well represented. Sucker rods shown included the latest in metallurgical study, presenting a selection of a number of grades, each made for a different condition. The use of instruments for determining the condition of each well for counterbalancing purposes was studied by many of the engineers visiting the grounds.

The latest in valves, tubing, casing, pumps, and other pumping equipment were displayed in abundance.

That there also have been improvements in natural flowing and artificial flowing equipment could not be overlooked by the engineers. There was plenty of evidence on hand to show advancements in gas/oil ratio control. New heavy-duty compressors in many shapes and forms were the last word in gas-lift machinery design.

Pipe Line Machinery

Pipe-line machinery from the heaviest stationary engine and electrical types to

Grand Old Men

MARTIN HENRY MOSIER AND W. J. STEWART SELECTED

TULSA.

MARTIN HENRY MOSIER of Los Angeles and W. J. Stewart of Tulsa were selected as the "Grand Old Men" by the Historical Committee of the Ninth International Petroleum Exposition. Mosier was designated as the "Grand Old Man of the Industry," and Stewart as the "Grand Old Man of Tulsa." Both men have had long and active careers in the oil industry. William H. Peiffer, Carthage, Missouri, was chosen the "Pioneer of Pioneers."

Martin Henry Mosier entered the oil industry in April, 1876, at Petrola, Butler County, Pennsylvania, at the age of 20 as a well pumper. During his career of 60 years, he has been a superintendent and owner of wells. He was superintendent for Bradford Gas Light & Heating Company, during which time he built the first natural gas pumping station in 1881. As a natural gas engineer his services were used in Bradford, Pittsburgh, Indianapolis, Fort Wayne, and Chicago.

In the spring of 1889, Mosier was constructing a gas pipe line from Portland, Indiana, to Fort Recovery, Ohio, when he met Elwood Haynes and hired Haynes on the project. Later, Haynes through his experience in the gas business was able to invent the first automobile, which he drove from the gas pumping station nine miles to Kokomo on July 14, 1894.

Being of the opinion that the oil territory east of the Mississippi was fully developed, Mosier came to Oklahoma in the spring of 1905. With Tulsa as his home, he drilled his first well at Glenn-pool. It was the second well in this famous field. Since that time Mosier

[*Continued on page 16*]

the portable units available for hot-spot duty were exhibited. Pumps and other pipe-line equipment has advanced along with the remainder of the industry. Meters for both gas and oil measurement have been greatly perfected, as has remote control and other features.

Tanks, safety equipment, pipe machines, chains, trucks, separators, bearings, belts, welding equipment, walking beams, pitmans, burners, fishing devices, slush pumps, portable pulling units, tractors, couplings, packing, pipe tools, chemicals, lanterns, blowout preventers and controls, fittings, unions, regulators, ditching machines, drilling bits, cleaners, treating units, and many, many other units of equipment were on display and received attention from the large number of engineers, superintendents and other field men who attended the exposition.

SAFETY AWARDS

Tulsa.—The team representing Magnolia Petroleum Company refinery at Beaumont, Texas, won first place in the safety contest staged at the International Petroleum Exposition in Tulsa on May 22. Twenty-three teams competed. Second place was awarded Humble Oil & Refining Company's team from its Baytown, Texas, refinery, and The Texas Company's refinery team from West Tulsa took third place. The awards were presented at a banquet Friday night.

A.I.M.E. MEETING

Lovejoy and Lieb discuss outstanding problems

TULSA.

TWO prominent oil executives and notable petroleum engineers were speakers before the Mid-Continent Section meeting of the American Institute of Mining and Metallurgical Engineers held in Tulsa, May 19. They were John M. Lovejoy, former head of Amerada Petroleum Corporation, and now president of Seaboard Oil Company and president of the A.I.M.E., and C. H. Lieb, president of The Carter Oil Company.

Lovejoy is on a tour of the country, speaking before the various chapters of the Institute. He spoke on the "Activities of the Petroleum Division of the A.I.M.E." He said he had been an engineer since 1914, and had witnessed the birth and growth of the new profession.

Economies of Production

Lieb spoke on "Economies of Producing Practices," in which he discussed the recognition of more economical practices by the petroleum engineer. He particularly stressed wider spacing, regulation of natural flow and conservation of a well's natural energy. Lieb told how the industry had changed from trying to place wells on the pump as soon as possible to the development of flowing methods that will prolong natural flow. In conclusion he gave a list of advantages that are to be gained by the application of efficient and economical practices in the industry.

His address appears in full elsewhere in this issue.

U. S. Stops Rodessa

BRYANT DENIES "SPECIAL" OIL INTERSTATE MOVEMENT

OIL produced from Pelican Oil & Gasoline Company's 120-acre lease at Rodessa in excess of the well allowable for the field was barred from movement in interstate commerce in a decision by Federal Judge Randolph Bryant of the Eastern District of Texas, sitting at Sherman, late Thursday.

Preliminary injunction was granted the United States in its suit against The Texas Company et al. However, the action was dismissed as against The Texas Company and Texas Empire Pipe Line Company, leaving East Texas Refining Company, Eastern Texas Pipe Line Company and Tide Water Oil Company as parties to the suit. The court ordered 71,374 barrels of crude now located at Nettleton tank farm and at Sour Lake impounded pending further hearing Monday or Tuesday.

The court's action followed testimony of A. H. Weyland of Shreveport, general superintendent of Arkansas Natural Gas Company, that opening of the wells on the Pelican lease would result in disproportionate drainage, increased gas waste, reduction of ultimate recovery of oil and speeding up of water intrusion. Already, he said, bottom-hole pressure in adjacent wells has been greatly reduced. F. E. Lacaze and W. L. Yauger, United Gas Public Service Company; R. H. Row and Lamar Baker, Haynes Drilling Corporation; B. E. Lindsey, U. S. Bureau of Mines, and H. W. Bell, Standard Oil Company of Louisiana, gave confirming testimony.

Dillard Estes, attorney for the defendants, argued that the Connally Act was not concerned, as the oil in question was produced under a valid order of the state.

Shreveport—Production from Pelican Oil & Gasoline Company's 13 wells on the 120-acre Sexton lease, Section 14-23n-16w, Rodessa field, Caddo Parish, Louisiana, dropped to 9,252 barrels for the 24-hour period ending at 7 a. m. Friday, May 22, as compared to 10,754 barrels the preceding 24 hours.

Eastern Texas Pipe Line Company ran 12,350 barrels from the lease for the 24 hours ending at 7 a. m. Friday. Granting of a federal court injunction Thursday against further interstate movement of 71,374 barrels of Rodessa crude, was believed to have caused the recession, and the belief prevails that all the wells are being cut back to the 350-barrel per well per day regular allowable for the field.

Allowables Must Be Reasonable

"Allowables must be fixed upon a reasonable basis," Judge Bryant said. "I think this order is thoroughly unreasonable. Louisiana officials can't bring in oil from Louisiana and destroy Texas markets. I say on the face that it is farcical and not reasonable."

Officials of Tide Water Oil Company earlier in the week issued a statement to the effect that that company had contracted for Rodessa oil that it had presumed was to be produced under the field's orderly allowable, and that it would not accept oil if "illegally produced."

Ickes to Investigate

Secretary of the Interior Harold L. Ickes on Friday refused further comment than his ordering of a reopening of the Rodessa situation earlier in the week. This action followed protests against his recent decision that Rodessa oil did not offer such a problem as to justify the creation of a second tender board for that area.

Charges by independent producers that excess oil from Rodessa was being dumped in states adjoining Louisiana some months ago led to an investigation of conditions, but it was reported that the Louisiana authorities had the situation well in hand.

Since the secretary's recent decision not to establish a second tender board, additional protests have been received and, in conformity with his promise that further studies would be made if necessary, another survey has been ordered.

Bankers Ask Official Cooperation

The Texas Bankers Association meeting at Houston on May 21 by resolution asked Louisiana bankers to cooperate with Texas bankers in rendering such aid as may be required to promote a cooperative policy between Louisiana and Texas public officials in conserving and preserving the oil and gas industries within those states, according to a resolution passed by the Texas Bankers Association in convention in Houston May 21.

The resolution, having in mind the production situation at Rodessa in particular, was submitted to the bankers by Tucker Royal, chairman of the board of the First National Bank of Dallas, and A. D. Simpson, president of the National Bank of Commerce, Houston.

Concluding the resolution was a paragraph which read: "We hereby urge the president of the Texas Bankers Association to appoint a special committee of members to confer, collaborate and cooperate with a like committee of the Louisiana Bankers Association to render

such aid and assistance as may be required in the public interest to effectuate a co-operative policy between the responsible public officials of Louisiana and Texas in conserving and preserving the oil and gas industry within the states of Louisiana and Texas, and in fully discharging the responsibility of these two states in this matter which is of paramount national importance."

Commendation of the work of the Texas Railroad Commission and of Colonel Earnest O. Thompson, chairman of the commission, also was embodied in the resolution. Special emphasis was placed on the value of Thompson's proposal to the Louisiana governor and conservation authorities to cooperate in the holding of joint meetings and in the promulgation of uniform or consistent regulations governing the common pool or pools lying partly within the states of Louisiana and Texas.

The "whereases" of the resolution cited the conservation program of most of the states as one of the greatest contributions to national recovery, cited a cooperative policy between oil producing states as of paramount importance, and cited the fact that the Texas Railroad Commission had limited production of oil and gas within the state to avoid physical waste.

Threatens Price

"LOUISIANA 'CAN'T EAT CAKE AND HAVE IT TOO'"—BYLES

HOUSTON.

OF production in the Rodessa field of Louisiana continues to increase for the next quarter in relative proportion to the way it has increased since discovery of oil there, we are justified in expecting a cut in crude oil prices. With the daily average production figure for the nation what it is today, I don't see how it could be otherwise," Axtell J. Byles, president of the American Petroleum Institute told THE OIL WEEKLY May 20.

The statement was made by Byles a few minutes after conclusion of his speech to the Texas Bankers Association, in convention at Houston.

Byles cited one instance in Rodessa where a lack of equity existed with reference to production privileges accorded one 120-acre lease, stating it seemed unfair for wells on that lease to be allowed to produce far in excess of regular per-well allowables for the field while contiguous leases were forced to "play cricket" and produce wells in accordance with the regular per-well allowable for the field.

"Bear this in mind," he continued, "nothing can happen in Rodessa in the way of unwanted contribution of flush oil that will not have a direct bearing on the welfare of the owners of stripper wells throughout the nation. Liberty," he said in discussing some producers' interpretations of personal rights with reference to production practices, "can only exist if it survives at the grass roots."

Louisiana's new governor, Richard Leche, has been quoted recently as saying that a resource undeveloped is no good to anyone, or words to that effect having as their purpose justification of a heavy production at Rodessa. In this connection, Byles declared: "Louisiana can not have her cake and eat it too."

Byles suggested alliance of Louisiana with the Interstate Compact would be a step in the direction of true conservation of Louisiana's resources and preservation of a healthy condition within the industry. "The Interstate Compact," he said, "is the vehicle of co-operation between the states and the producers. It fills the twilight zone between federal and local control. It has done much to protect the welfare of the producer and the citizen, or his state, as well. But—California and Louisiana are needed as members of that compact to make it thoroughly effective.

"By this I do not mean for you to construe that I am opposed to the anti-trust laws. On the contrary, I am much in favor of them. They give us necessary protection against others, as well as against ourselves."

Byles continued his talk by stressing the importance of conservation, saying, "True conservation is the largest per-acre recovery at the lowest possible cost." Attaining this goal is not a matter for one branch of the industry or of government to tackle alone, he inferred. "The fate of conservation lies in the hands of state governing bodies, in the hands of the producers, and most important of all, in the hands of a well-informed public opinion.

"The real heart of conservation and the support of proration," Byles declared, "is in proper well spacing. If engineers of the Texas Railroad Commission had known three years ago what they know today, we should have had today possibly 5000 wells in East Texas rather than the 20,000 we have."

Speaking to the bankers on crude oil reserves, Byles stated, "We have between 12 and 13 billion barrels in proven reserves, so our problem is not one of potential, immediate scarcity, but is rather one of handling economically and sensibly a daily average production in the nation that is entirely too much for continued stability within the industry. Even assuming a shortage of crude oil reserves looms for the immediate future—which it does not—the transition from motor fuels as we know them today to synthetic fuels will be so smooth that you will not be able to recognize it. And there is enough of material available in the United States to allow production of synthetic fuel for more than 100 years without resorting to the extraction of oil from shale."

A note or warning was sounded by Byles when he said:

"I am not a bit happy about the current situation in the oil industry. We have had a fairly stable market for a couple of years with oil selling roughly at $1.00 per barrel. But—production has passed three million barrels per day. In the light of present crude oil demand and increasing stocks this represents an unreasonable excess over the daily recovery figure desired for a sound balance between the various branches of the industry. If we do not stabilize, we are subject to the indictment of waste."

Seek Conference

Conservation officials of Texas and Louisiana last week renewed negotiations for a joint hearing to develop a plan for uniform control of the Rodessa field.

Texas Railroad Commission Chairman Ernest O. Thompson requested that Louisiana officials meet with Texas officials at Marshall, Texas, on June 3 or June 5. He urged the hearing as a means of gathering evidence relating to physical waste alone, upon which to base proper orders for control of the field.

Governor Richard Leche phoned Thompson and advised him that he thought there was no waste in Rodessa as it is operated now. Thompson agreed that this was probably true, but pointed out that no valid orders could be issued for Texas without a proper hearing.

Leche inquired what Thompson thought the Connally Hot Oil Act meant, insofar as it concerned the control of oil production in either state.

Thompson declared that in his opinion the Connally Hot Oil Act meant that any oil is legal oil which is producing in compliance with the provisions of the valid orders of any state regulatory body. He insisted that each state had the right to determine its own destiny in fixing proration orders, and that this was not the concern of any other state, nor would it come under the control of any federal act.

Leche agreed that the hearing would probably be beneficial to all concerned, but late in the week he had not accepted the invitation for either date specified.

ALL WANT TARIFF

If it is to their advantage but not if otherwise

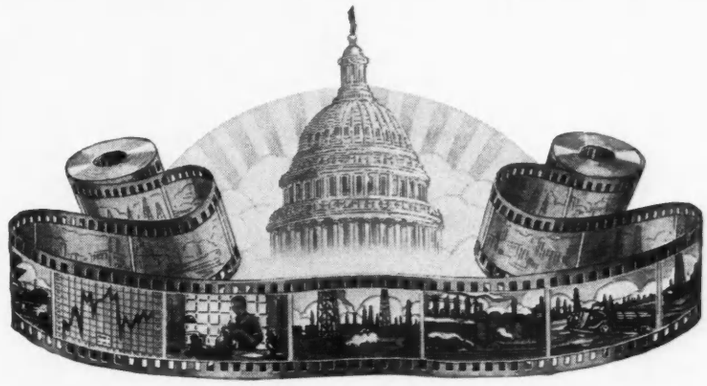
WASHINGTON, D. C.

HEARINGS this week before the House ways and means committee on the Disney bill to restrict oil imports were turned into a tariff free-for-all by labor and agricultural interests seeking to use the measure as a vehicle to limit the importation of foreign commodities.

Although the bill sought to increase the excise taxes on imported oil and its products through amendment of the existing revenue law, it was admitted early in the hearings that it was, in effect, a tariff measure, and on that assumption members of the committee and witnesses devoted much time to a discussion of the administration's reciprocal tariff policy and the effects upon domestic industry of trade agreements with France, Canada and Cuba.

While the measure was introduced by a Democrat, it received the bulk of its support from Republican members of the committee who, however, freely admitted that it had little or no chance of getting further than the hearing stage this session. Among the witnesses, it was supported by representatives of the oil and coal industries and the American Federation of Labor and the oil workers' union, and was opposed by state road officials and oil consuming industries of the east.

The Changing Panorama



THE OIL WEEKLY'S COMPOSITE VIEW OF INDUSTRY

Edited by L. J. LOGAN, Associate Editor

PENDING to overshadow everything else in the oil picture lately has been the mounting production of crude oil. Every one of the five leading producing states has been producing substantially above the Bureau of Mines recommendations, although Louisiana has shown the greatest excess and has given the most cause for anxiety.

While the Louisiana excess has been statewide in scope, that centering in the Rodessa field has been most conspicuous.

This combination of circumstances has meant that Rodessa's overproduction has been a national disturbance from the oil industry's viewpoint. The developments there are being watched under the assumption that they possibly may cause a collapse of the oil industry's markets. They are being watched also in the realization that the industry still has not reached the millennium in regulating crude production; that its old, old problem has not yet been solved, after all.

The situation is one of those more or less unexpected predicaments suddenly demanding, "Now what is to be done," when momentarily there does not seem to be anything that can be done.

Some in the industry still are holding fast to the optimism that was running free a few months ago, and are hoping that matters will turn out all right—that Louisiana production will be made to conform to some reasonable program.

But others have discarded the bright role of optimism for a somber coat of pessimism, and can see no early

A Telegram to Governor Leche

Houston, Texas, May 22, 1936.

Honorable Richard W. Leche,
Governor of Louisiana,
Baton Rouge, Louisiana.

My dear Governor:

Last year, when the question of a federal oil dictator was up for decision in a bill at Washington which showed many evidences of passage, this bill was temporarily defeated by believers in individual and states rights on the representation to the Congress that the oil states could prevent waste and chaos in the oil industry through the practical workings of an Interstate Oil Compact. The Congress, by its vote on the bill, gave the states an opportunity to solve the problem through the application of an oil state compact.

You and Louisiana have given evidences in the past of firm opposition to federal governmental interference with the rights of states and individuals, so we must conclude that your action with reference to allowable at Rodessa was taken without realization that you were putting a powerful weapon in the hands of those who favor federal control.

Those favoring federal control said that the various states could not or would not work together to make an Interstate Oil Compact succeed. At present time the situation in Louisiana represents the greatest menace to the industry and the best argument possible for federal control.

Why not, Mr. Governor, enter into the Interstate Oil Compact insofar as you can, and contribute your share in the deliberations of that body? If you feel that Louisiana is unfairly treated in the matter of allowable, why not present your cause to the interstate body as a member instead of lending weight to those who say that a federal oil dictator is inevitable?

RAY L. DUDLEY, *Publisher,*
THE OIL WEEKLY.

clearing up of a bad state of affairs. Besides threatening the present markets, some feel, the Rodessa overproduction also is threatening the whole oil-control system under which the industry has been operating, with hitherto satisfactory results. The existing system is the system of proration, carried out with the cooperation of the various state governments. If this system is to break down, then what? Will another system have to be resorted to? Will the industry be forced to take back all it has said in the past two or three years against federal control, and go in supplication to the national capital seeking this kind of regulation, that it previously spurned?

Events May Change Oil Control Ideas

Although a large proportion of the oil industry has gone on record as opposing stricter federal control of the industry, sentiment can change as rapidly and as radically within the industry as among the country's voters, as time passes and conditions are altered.

When the oil industry formerly showed strong opposition to the Thomas-Disney and similar bills for federal regulation of crude production, one of the stronger arguments was that federal control was unnecessary because the state governments already were furnishing all the regulation needed. That argument was strong because it was true. At that time the East Texas field was the only real market threat, and the Texas authorities were doing a fairly successful job of holding the output down.

Louisiana Changes Picture

Today the picture is very much different. Today there is a Rodessa. And proration in Louisiana is not what proration is in Texas. Louisiana does not have the strong, tried, and proved conservation law that Texas has on the statute books. Louisiana oil control authorities apparently do not have the deep and seasoned sense of responsibility that the members of the Texas Railroad Commission have in preserving orderly conditions in oil production. And yet Louisiana has vast oil reserves, that have potentialities for wreaking much havoc.

Furthermore, those potentialities lately have been converted, at least to a limited extent, into realities. Last week there was much anxiety that crude prices as well as refined product prices soon might break, in view of the overproduction at Rodessa, under the special order that singled out a given lease and authorized higher allowables than the regular field allowables. The situation had become so serious that leaders in the industry were gravely concerned. Although there were suggestions and efforts toward restoring order at Rodessa and toward averting the threatened market break, the general atmosphere surrounding Rodessa continued filled with tenseness and fears.

Fears Over Rodessa Partially Relieved

To some extent the minds disturbed over Rodessa were relieved late last week by the frowning on the special allowables in the field by Federal District Judge Randolph Bryant at Sherman, Texas, May 21. However, the threat of too much oil from Rodessa still has not been lifted, as will be explained presently. The court granted preliminary injunction restraining further movement in interstate commerce of approximately 70,000 barrels of Rodessa crude that had been moved into Texas, and ordered the oil impounded pending further hearing at Tyler, Texas, May 25 or May 26.

In an all-day hearing at Sherman, engineers of companies owning offset wells testified that their wells were being damaged by the special higher allowables granted to Pelican Oil & Gasoline Company by a Louisiana conservation official. Judge Bryant reached the preliminary conclusion that the special order was not valid and that oil produced under it from the Pelican property was contraband and ineligible for interstate shipment, under terms of the Connally Act. The judge declared allowables must be reasonable, and said he believed this order was thoroughly unreasonable. The Pelican wells were permitted under the special order to produce for 60 days, beginning March 24, in excess of the regular field allowables of 350 barrels daily because the company had a market for such additional production. Under the order the 13 wells recently produced as much as 17,000 barrels in one day, although the total output was cut back the middle of last week to about 10,000 barrels daily.

Louisiana Excess Still a Threat

This injunction is reassuring to the oil industry only to a limited extent. It removes the threat of too much production in Louisiana only in so far as the controversial special order is concerned. It means that excessive output under that particular order cannot be turned loose into other states. But it does not mean that Louisiana production henceforth necessarily must be low enough to promote stable markets. With the flourish of a fountain pen, the Louisiana conservation officials could issue a new state proration order, raising the allowable of every well in Rodessa to 500, 750, 1000 or 2000 barrels a day. (The discovery well originally was allowed 1750 barrels a day.) Then the order possibly would withstand any court attack, and the large quantities of oil produced under it would not be contraband oil, and could move in Louisiana, Texas, or anywhere else. So long as the output stays within valid state allowables, however high, there will not be contraband oil. In March the Louisiana allowables were such that the state produced 40,000 barrels a day more than the Bureau of Mines recommendation, and in April, 50,000 barrels a day more. In May the excess is running much higher, because of the Rodessa situation.

The Louisiana authorities have it within their power to say how much Louisiana may produce, and whatever they say must be acceptable to the other states and the industry. The Connally Act means little until the state produces more than the state officials prescribe.

Rodessa Helps Federal Control Cause

It is a safe bet that federal regulation of oil would command a more sympathetic hearing today than it did previously, in view of the Rodessa situation and the disposition of the Louisiana authorities to let the state produce consistently far above the Bureau of Mines estimates of demand. So long as the important oil-producing states were cooperating, practicing self restraint, and holding the national crude output within reasonable bounds, there was a general disposition in the industry to let well enough alone, and not to invite further control in the form of federal regulation. But sentiment naturally has undergone some change, since the fourth-largest producing state has taken in recent months the course that it has, showing no desire or intention to cooperate in a national conservation program. It is but

[*Continued on page 46*]

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Lovejoy Speaks

ECONOMIC PRORATION HIS SUBJECT BEFORE I. P. A. A.

TULSA.

COMMITTTE meetings and reports occupied most of the one-day mid-year meeting of the Independent Petroleum Association of America held in Tulsa, May 21. The highlight of the meeting came at the banquet, when John M. Lovejoy, president of Seaboard Oil Company and of the American Institute of Mining and Metallurgical Engineers was the speaker. The National Stripper Well Association members joined in this banquet.

Charles F. Roeser, president of the Independent Petroleum Association of America, drew several rounds of applause with remarks he made at the banquet. He stated that there is "no basis for any reduction in the price of crude oil at this time if we will look ahead a year instead of only at the present moment. Rodessa is not as serious a situation as many would have us believe. Only a few thousand barrels of excess oil has been produced, whereas 1ω,000 barrels of hot oil were absorbed daily in East Texas for a time without a price reduction.

Roeser called attention to the fact that with a little common sense the industry can reach the same economic basis this year that it did a year ago.

During 1935 a net reduction of 30 million barrels was made in crude stocks, although an increase in storage was made the first few months, as has been the case this year. "Last year by following the United States Bureau of Mines recommendations we were able to reach a satisfactory economic basis by October 1 and can do the same thing this year," he concluded.

Lovejoy spoke on "Some Economic Aspects of Proration." He said that restriction of flush production is true conservation and will result in the recovery at low cost of untold millions or perhaps even billions of barrels not recoverable under methods of production used 10 years ago.

His remarks in full follow:

The business of producing crude oil has changed profoundly in the last 10 years. I will attempt this evening to analyze the forces which made great changes inevitable and to comment on the future trend of the industry as I see it. A combination of circumstances are responsible for the position in which we now find ourselves. It should be a matter of vital concern to all oil producers to inquire just where we go from here.

The most important single discovery made by the industry since its inception was the realization that the flow of oil wells could be artificially restricted without damage to the ultimate productivity of the wells. As soon as this fact was definitely demonstrated the industry began voluntarily to modify the old rule of capture through the medium of proration and a new era in the industry commenced. Concurrently a new technical profession came into being, the profession of Petroleum Engineering. During the unrestricted reign of the law of capture the engineer had little chance to try out any theories which might lead to greater ultimate recovery but with the introduction of proration, scientific production methods were required and soon the petroleum engineer became an essential group within the industry. The engineer, in conjunction with the progressive operator, has made the production of oil a true scientific mining operation.

Commencing in 1926 as a temporary expedient, voluntary proration was adopted as the means to flatten the too frequent peaks of flush production which were so upsetting to the stability of the industry. The period from 1926 to 1931 proved to be one of almost continuous new discovery and once having started proration we have never since been able to absorb currently but a small percentage of the new flush production developed. But a strange thing has happened. The entire conception of proper oil production methods has changed so that today no competent operator would consider the unrestricted open flow of flush wells. With or without organized proration no new field will ever again, in my opinion, be produced without regard to the intelligent use of the reservoir energy inherent therein. Restricting flush production originally for the purpose of stabilization proved to be the greatest step toward true conservation ever undertaken.

Restricted flow then, is a good thing for the industry and for the country, *but* its application and regulation is difficult and often inequitable. We are not yet sufficiently educated to conduct our business on a purely cooperative basis and too often a selfish minority prevents a proper and efficient development program for a field. Consequently, it has been necessary for the great oil producing states to pass laws under which proration is regulated and, unfortunately, laws cannot be made to dove-tail entirely with modern engineering technique. When we are a little wiser we will need no laws to force upon us a development which every instinct of common sense tells us we can do better by voluntary cooperation.

Law Helps

For the present, however, we still need the help of certain laws. As engineers and operators, I think we should encourage legislation in every oil state prohibiting the waste of the reservoir energy of oil fields, purely and entirely as a conservation measure. This energy is a force which when prematurely exhausted or if used for inferior purposes causes a loss to the state of incalculable value and is forever irrecoverable.

Engineers now believe that over 80 percent of the recoverable oil in a field can be naturally flowed to the surface but to do this we must experiment with gas-oil ratios and other field problems until we find a production rate approximately in balance with the expansion of gas in solution and the movement of water into the sand being drained.

Even with good conservation laws our problem is not entirely solved. With proration based solely on well potentials there is an apparent reward for close well spacing. A few operators in a field may force this issue until the vicious circle of close spacing spreads throughout an entire field. Legislation covering well spacing is most difficult because of the many variable factors, such as costs, price for crude, et cetera, which must be considered before determination of that well spacing which will yield the maximum recovery of oil. But as to maximum recovery of *dollars*, there can be no question. Those that believe they will benefit by drilling more wells per acre than reasonably necessary to drain their property are led by a "will-of-the-wisp." In the end, they will force their neighbor to do likewise and neither they nor their neighbor will make as many net dollars from their property.

In most of the recently discovered fields the operators among themselves have been able to agree on some reasonable well spacing and this is strictly adhered to—we should need no laws in this matter. Common sense and a knowledge of simple economics should be sufficient.

Having reveiwed proration in the abstract, let us now look at its practical application. Let us consider some interesting facts. We have a vast potential overproduction. The industry completed 15,000 oil wells in the United States in 1935. It is reasonable to assume that we will complete an equal unmber this year. We can also assume that 10,000 of these completions are large enough initially so that they must be prorated. Each of these new wells demands its share of the total production. How is the industry to absorb the production from these new wells?

Firstly, through the decline of old wells and abandonments.

Secondly, through increased demand.

Thirdly, through deeper proration of all wells.

Let us briefly consider these three factors.

The decline in prorated wells is invisible. There is, of course, a decline in the *potential* of the prorated well but that is offset by the potential of the 10,000 new wells. In looking for decline then we are limited to the 290,000 odd wells which include all the small wells, strippers, and edge wells. I estimate the production from this group at about 900,000 barrels per day, or an average of 3 barrels each. After allowing for 5000 of the 15,000 new wells to stem the decline, it is reasonable to assume that this group will decline some 50,000 barrels per day in the period of one year.

The consumption of oil products has shown an amazing increase during the last two years. This is partly attributable to the fact that the period coincides with general recovery from the depression and in my opinion that rate of increase will not continue. In order to have some figures to work with, let us assume an overall increase in demand for the next year of 3 percent, or roughly, 150,000 barrels per day. We have found then, that through decline and through increased demand, we can assign 200,000 barrels per day more at the end of a year to prorated wells, but we will have by that time 10,000 more wells to prorate. There are now some 50,000 wells prorated to 2,000,000 barrels per day, or an average of 40 barrels each. At the end of a year we will have 60,000 wells prorated to 2,200,000

[*Continued on page 50*]

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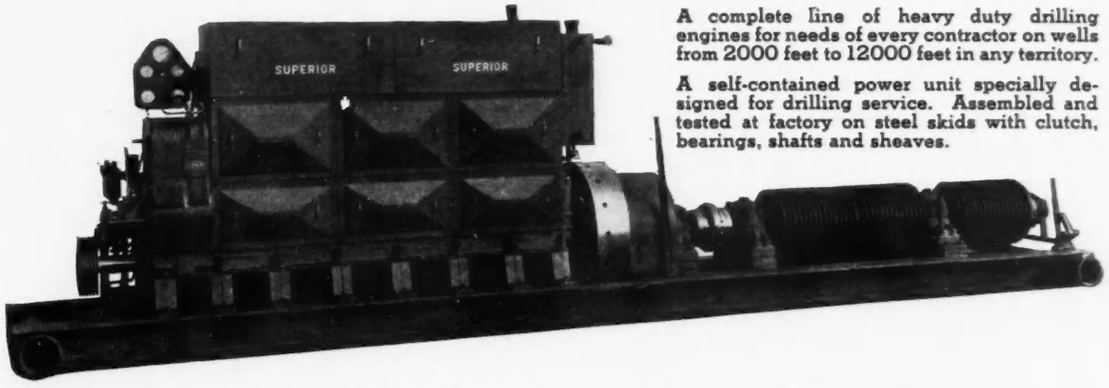

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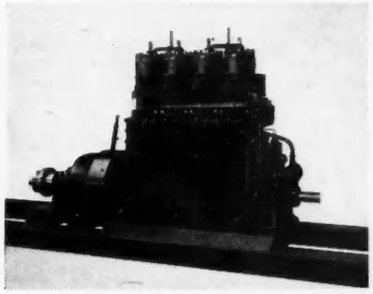

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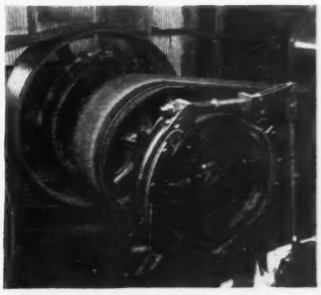

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MEN IN THE INDUSTRY'S NEWS

PHILLIPS PETROLEUM COMPANY has opened a district office in El Dorado. Warren Weeks, recently transferred to Shreveport from West Texas, has been named district geologist in the El Dorado office, John Alban, chief of the land department, and L. W. Alexander, land scout. Others will be assigned to the office later.

W. J. NUTTO, South American representative of Reed Roller Bit Company, is in the States for a few weeks visit.

AB. E. HALEY, retired, formerly with the B. P. M., passed away in Scotland the latter part of April, following an operation. He was for many years connected with B. P. M. in the Dutch East Indies.

HEADED BY STANLEY TRENGROVE, head of the Petroleum Engineering Department of the University of Minnesota, six students in the Petroleum Engineering Department spent last week at Tulsa studying oil country equipment. The course in petroleum engineering at the University of Minnesota is comparatively new. Six men are in the graduating class this year, three of whom are at the exposition. The students attending the exposition were Sabin, Larson, Danchertsen, Kugler, Thronson and Spears.

E. J. DALY, formerly with Burma Oil Company, has returned from Burma and is now living in Oklahoma City.

J. H. McLEOD was elected president of Royalite Oil Company at a recent meeting held in Calgary, Alberta, Canada. Other officers elected were: Alexander Hannah, K. C., vice president; T. E. Burns, secretary; and C. R. Smith, W. S. Barron, C. M. Moore, and S. F. Heard, directors.

MARTIN HENRY MOSIER

FREDERICK A. GABY, D.Sc., M.E.I.C., executive vice president of the British American Oil Company, Toronto, recently visited his company's plants in Turner Valley and Cootes, Canada.

DR. ROBIN WILLIS, geologist, active in Alberta, Canada, recently delivered a paper titled "The Practical Problem of Finding Oil" before the mining bureau of the board of trade, Vancouver, British Columbia.

JOHN O'NEIL, 63, veteran North Texas operator, died May 18 at Wichita Falls, following a heart attack. He had been in ill health for more than a year. Showing a preference to operate inidividually, O'Neil drilled many wells in North Texas, particularly Wichita and Wilbarger Counties. He entered the oil business in 1890 in Pennsylvania, and operated in West Virginia and Ohio before establishing residence at Wichita Falls.

GRAND OLD MEN

[Continued from page 8]

has always maintained offices in Tulsa, although he has resided in California since 1911.

At 80 years of age, Mosier is still greatly interested in production of oil and gas. As an individual, he is owner of stripper wells in Oklahoma and Ohio. He also is president of Carpathis Petroleum Company, Satellite Oil Company, M. H. Mosier Special and The Petroleum Company. All these companies are actively engaged in the production of oil, having properties in Oklahoma, Texas and California.

W. J. Stewart, the grand old man of Tulsa, also hails from Pennsylvania. He was born at Bruin in Butler County on July 12, 1860. His step-father was in the oil business and as a boy he assisted by performing light labors. In 1877, Stewart went to work for C. W. Atkings as a roustabout in McKean County. From 1888 to 1892 he was in Forest and Warren Counties. In the latter year he joined Sinclair-Morrison Company. From 1895 to 1907 he was at Sisterville. At this point he was one of the organizers of Melrose Oil Company. In 1907, he came to Tulsa and became associated with Devonian Oil Company, for whom he is still working.

Stewart can remember when people were engaged in dipping oil from wooden conductors of abandoned wells and filling wooden barrels.

William H. Peiffer, 93-year resident of Carthage, Missouri, was chosen the "Pioneer of Pioneers." He was born at Meadville, Pennsylvania, on July 23, 1843. He went to the oil fields near Church Run, near Titusville, in 1876, and became one of the veteran drillers of western Pennsylvania. Peiffer was at Petroleum Center, Oil City, Franklin and other places. The largest drilling job he performed was the drilling of a dozen or more wells at Foster Hill.

SIDNEY KILBEY, executive department of Cia. Mexicana de Petroleo "El Aguila" S. A. (Royal Dutch Shell) at Tampico, Mexico, is spending a three months' vacation in Europe. He will visit Shell headquarters in The Hague before returning to Mexico.

J. B. BARNETT, assistant general manager of Huasteca Petroleum Company (Standard Oil of New Jersey) at Tampico, is in Mexico City on business.

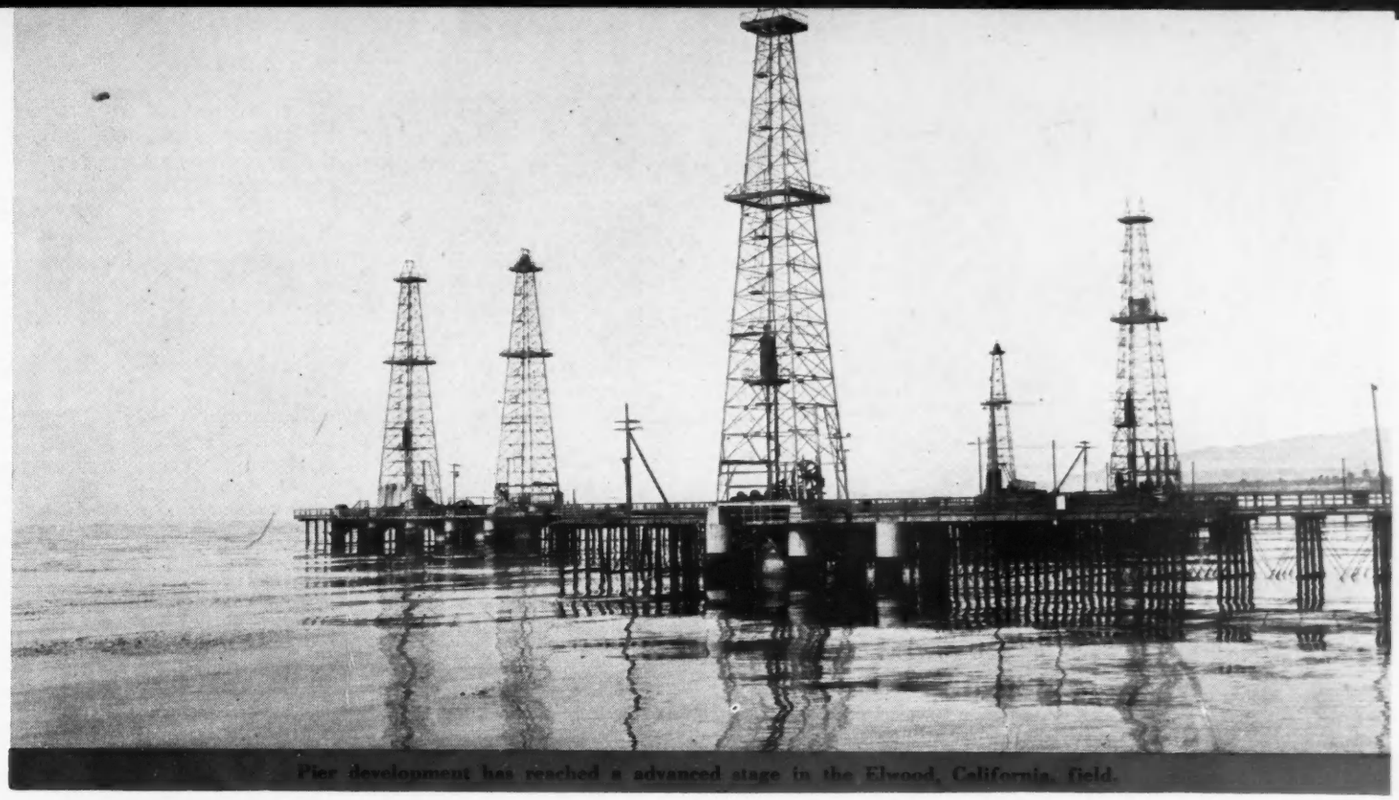
SALVADOR DEL RIO, production engineering department of Huasteca Petroleum Company at Cerro Azul, state of Veracruz, Mexico, is in the United States on vacation.

FRANK BROWN, formerly foreign representative of Hughes Tool Company, has resigned his position to open an export office on June 1 in New York. He will represent several leading manufacturers of oil field equipment.

RAIMUNDO A. MOLINO, student at Oklahoma University, plans to leave for his home in Venezuela as soon as he obtains a petroleum engineering degree in June. Molino plans to enter the oil business in Venezuela.

ROY G. CULLEN, 31-year-old vice president of Quintana Petroleum Company, Houston, died May 19 in Edinburg, Texas, from injuries received when a derrick collapsed on Engleman 1, South Texas wildcat. The accident occurred May 15 when attempts were being made to loosen a stuck drill stem. Cullen is survived by both parents, his father being H. R. Cullen who has attained considerable prominence as a wildcatter in the Texas Gulf Coast, his wife, three children and four sisters.

W. J. STEWART



Pier development has reached a advanced stage in the Elwood, California, field.

No Pollution Problem

IN DEVELOPMENT OF SUBMERGED LEASES ALONG COASTAL BELT

By BRAD MILLS, Associate Editor

DRILLING and production practices developed for marine operations in Louisiana, Texas and California compare favorably with the most efficient land practices, despite the much higher cost of water operations. Development since 1928 of several fields lying partly or wholly under water has been accomplished by a technique that has reduced drilling time under severe handicap, and has eliminated pollution of waters surrounding field operations.

Several outstanding examples of marine development may be found along the Texas-Louisiana Gulf Coast, where a number of important oil fields have been opened in accessible places that can be reached only by water. It is along this vast strip that development of drilling barges, floating tankage, geophysical prospecting and production practices have reached such an advanced stage.

During the early development of fields lying under water, every phase of field operations represented a distinct hazard. Damage to marine life, pollution of water, completion of wells, operation of producing wells, movement of oil from submerged fields, and loss incurred from drilling wells off structure were problems that discouraged water operations in every district. A systematic study of the causes of the early difficulties has resulted in a smooth-functioning development method in more than a dozen submerged fields along the Gulf Coast.

The Texas Company has pioneered the development of several South Louisiana fields that lie partly or entirely under water. The preliminary work involved a much more tedious and trying experience than the present field development under way in several areas. Gradual development of equipment and methods has resulted in a drilling and production program that is being carried out with little less effort than the average field campaign on the mainland.

In the development of submerged fields, particularly those lying under salt water of bays and lakes that open into the Gulf of Mexico, a definite and full program is mapped ahead of preliminary work. The surveying, geophysical and geological work, con-

struction program, drilling and completion outline, storage and movement of oil, and other smaller features are considered and provided for in the marine program of all major operators.

The Texas Company recently completed a geophysical survey of a large part of Lake Pontchartrain. The work naturally necessitated use of a large quantity of dynamite. The leases were obtained from the State of Louisiana and permission to "shoot" that portion of the lake was obtained from the state. A fish and game warden accompanied the geophysical crew to observe damage to marine life. The geophysical work was completed with no loss of fish. The shot holes were drilled to a depth of 50 to 100 feet and very small charges of dynamite used. Under the present geophysical program for reflection work, only small charges of dynamite are used and the depth of the shot holes is great enough to cushion the shock. The soft mud bottoms and water in the casing above the dynamite usually absorb so much of the shock that the surface evidence is very light.

Drilling Barges a Help

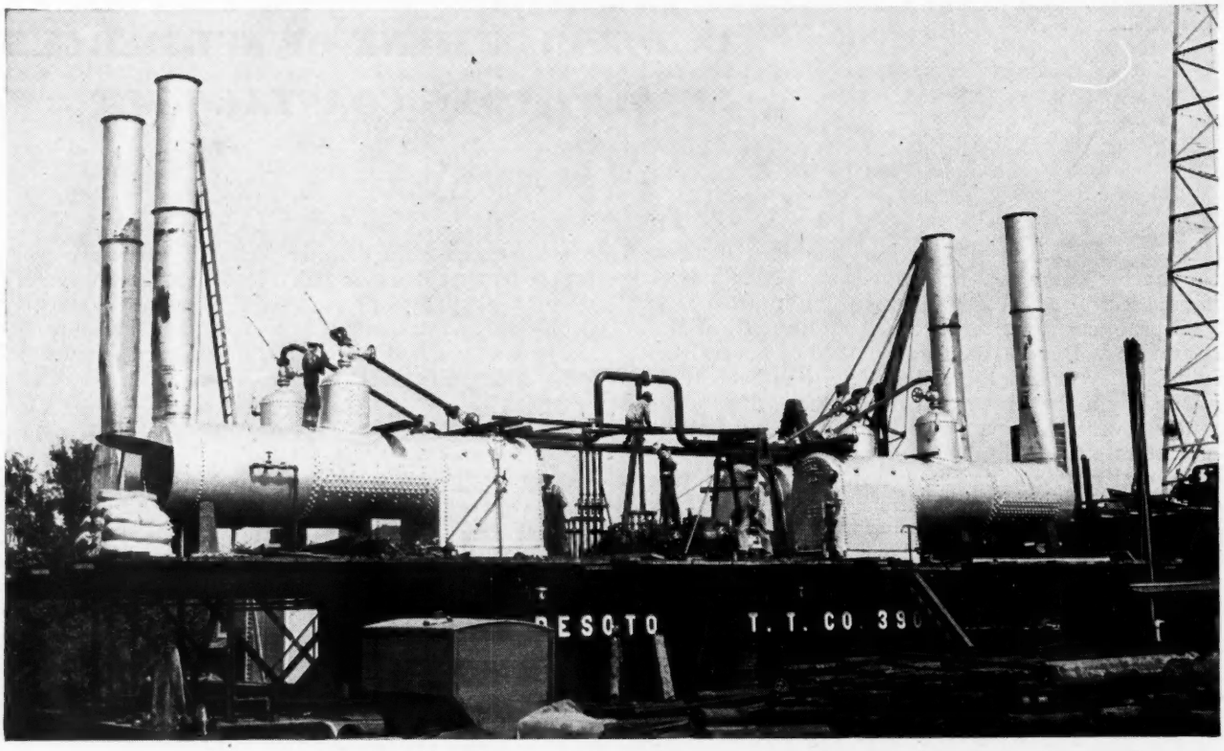
After completing the geophysical work the decision to drill is determined by the interpretation of the records. When a sumberged structure is indicated, preparations to drill with a large steel barge are made. This barge is the floating-sinking type and was developed for drilling in the shallow bay waters along the gulf. The barge carries permanently all equipment necessary to drill to 9000 or 10,000 feet. It is towed into position, sunk and made the full well foundation. More than a dozen salt domes along the South Louisiana coast have been ideally suited to this type of development. The Texas Company was one of the first to conceive the idea of barge development on such a large scale.

The steel drilling barges now in use are made in two sections and are of all-steel, all-welded construction. The dimensions of the barges, taken as a unit, are 56 by 110 by 10 feet, the first two figures representing the width and length, and the last the depth of the hulls. Each section of a barge is 24 by 110 by 10 feet, with an eight-foot separation between them. Thickness of the non-corrosive copper-bearing steel is five sixteenths of an inch. Each of the hulls has seven compartments, all being equipped with special sea cocks.

A feature of the construction is the reserve pit for rotary mud, which is built into one end of the barge. The main mud pit is located on one end of one barge section and is nothing more than a steel box 18 feet. The slush pumps are located on the corresponding end of the other hull, and are in a similar but larger steel box. They rest on a level with the barge deck.

The barge is constructed to prevent contamination of the surrounding water, the mud system reflecting the provisions for handling mud and returns from the hole. The capacity of the mud system is large enough to handle unusual or unexpected well flows or returns, and the barge is constructed to facilitate well flows during production tests. The barge is constructed so that if the well is a producer and it is necessary to "back away" and leave a Christmas tree, moving backward is possible by removing only two cross beams and one A-beam. The mud ditch is quarter-inch steel plate, 125 feet long, and designed for varoius rates of mud flow. The superstructure supporting the derrick and drilling equipment is braced with heavy H- and I-beams, concentration of this bracing being under each derrick leg. The rat hole passes through one of the barge hulls. Each hull has openings for anchoring the barge.

The barge is floated and moved with ease. A centrifugal pump is used to remove water from the sunken barge. Most of the drilling along the Louisi-



Boiler barge now being used along the Louisiana Gulf Coast

EXACTLY RIGHT
THERE'S A lot of casing going down into that hole; it has to be carefully checked to make sure it is to the exact position. Near enough, or close enough, won't do! The cement you use has to be exactly right, too, before it goes down. That's why it pays to use 'Incor.'
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Made and sold by producers of Lone Star Cement, subsidiaries of International Cement Corporation, New York; also sold by other cement manufacturers.
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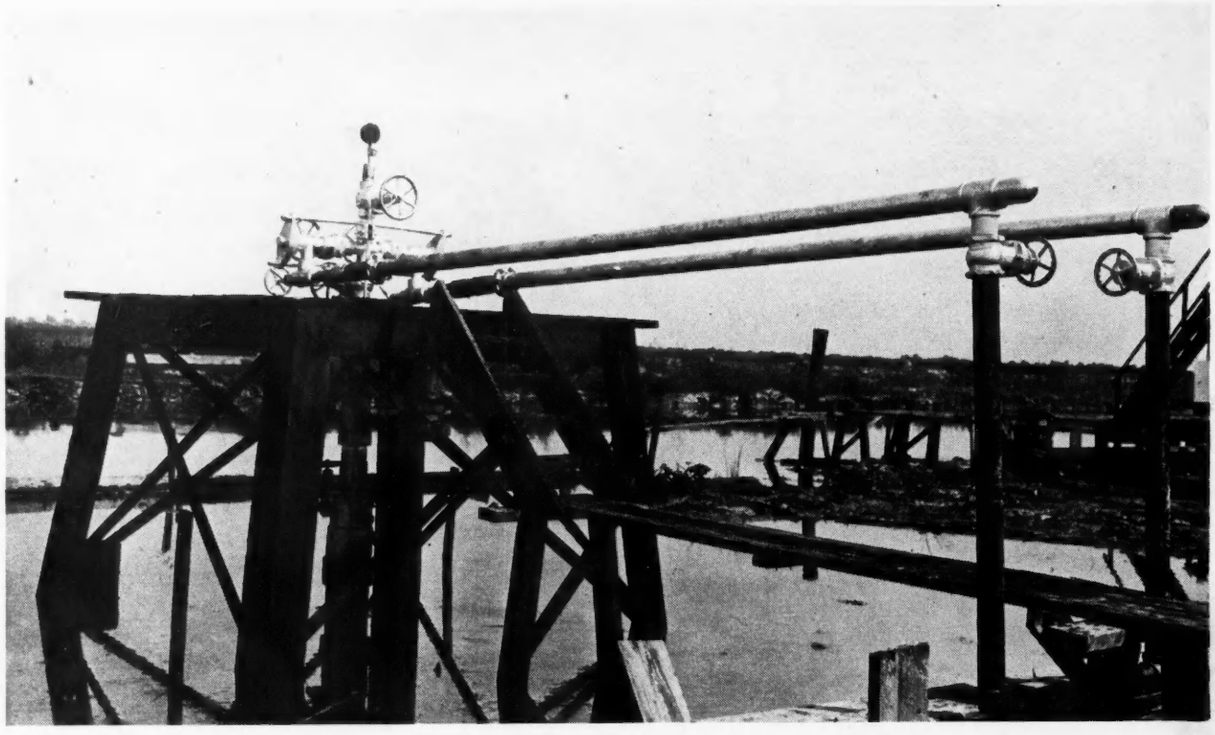
'INCOR' 24-Hour Cement



Christmas trees at water locations are built high as a check against pollution

ana coast has been done in five to seven feet of water. These depths gave a good depth margin, as it would not be difficult to drill in 12 or 13 feet of water. It is 15 feet from the bottom of the barge hulls to the top of the pump and slush pit compartments. Making allowances for wind and waves, water depths of 10 and 12 feet can be handled in bays not too seriously affected by the gulf.

The boilers are placed on a separate barge. It is much smaller and of a different type than the drilling barge, but it also is sunk after being towed into position. Three and four heavy boilers are used on each barge.

The size of the drilling barge permits use of the heaviest rotary drilling outfits. Most of the bays and inland waters have very flat bottoms and when the barge is placed on bottom the derrick is only slightly out of line. The engine house and tool room occupies one full end of the elevation on a level with the derrick floor, is fully enclosed and affords ample room for work and shelter. The submersible barges are built under contract, and when turned over to The Texas Company are ready for installation of drilling equipment.

In completing wells in the marine district, care is exercised to prevent pollution of the bay and gulf waters. The wells always are flowed into tanks during the production test and under no conditions is the flow allowed to enter the surrounding waters. Ample tanks are provided ahead of completion. Wells are flowed into both tank batteries and into barges and boats of various kinds.

It is the custom to install Christmas tree connections a good distance above water. Producing wells will be equipped with chokes in the tubing in case of storm warnings, such an arrangement keeping the well under control in case of damage to the Christmas tree connections.

Shell Petroleum Corporation, Humble Oil & Refining Company, The Texas Company and other operators have successfully developed submerged leases by placing the derrick and equipment on piling. Such a method also is being used to advantage in a number of semi-submerged districts that skirt the open gulf.

Galveston Bay Work

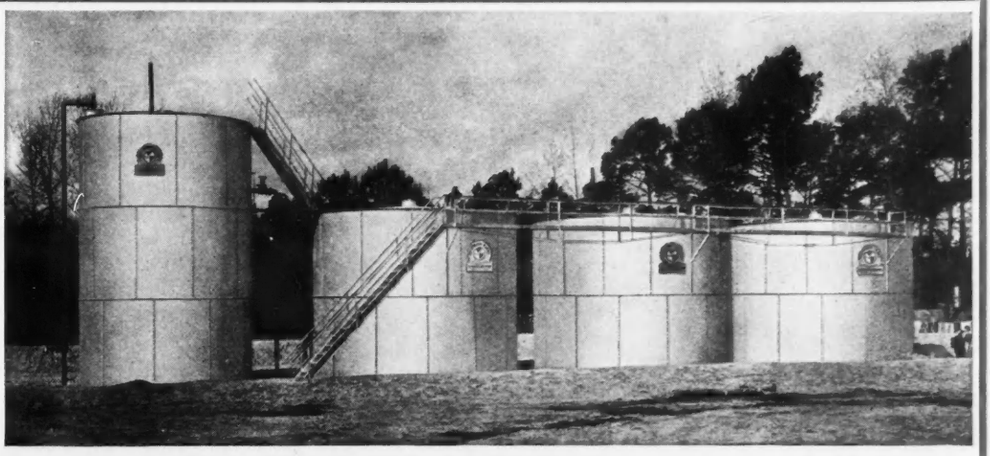
Several producing companies recently obtained leases on a large part of Galveston Bay, Harris County, Texas, and plans have been completed for development of these holdings if one or more structures are located. When these leases were granted by the State of Texas, there was no assurance that oil would be found in this area. Three or four of the companies that obtained these state leases are engaged in geophysical work as a part of the preliminary exploration campaign. Development of oil in such a large body of water is one of the most ambitious undertakings yet undertaken by the industry.

Salt Dome Oil Company and The California Company have developed an unusual geophysical prospecting method for use in Galveston Bay, where the companies hold state leases on large acreage that is entirely under water. A large houseboat anchored in the bay serves as a center of operations for the geophysical, geological and surveying crews.

Care is being exercised to prevent damage to marine life. The shot holes are being drilled to an average depth of 75 feet, and the shock from the discharge of the dynamite is almost completely absorbed by the mud bottom and water. A small core drilling outfit is being used for drilling the shot holes. The five-inch casing is run to the bottom of the shot hole, and discharge of each shot does not ruin but a small part of the lower section of the short casing string.

After placing the charge of dynamite in the shot

● (Right) A battery of Columbian Bolted Tanks with an interesting installation of Columbian walkways and stairways.



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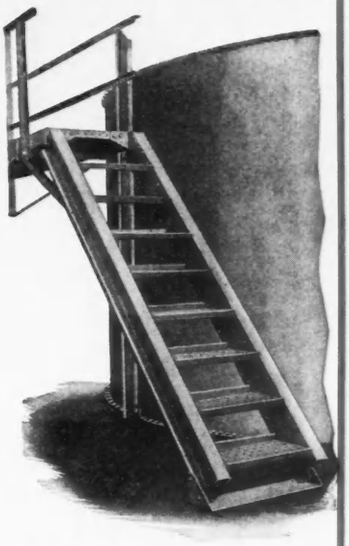
Outstanding in *all the essential features* . . . strength, rigidity and simplicity of design . . . Columbian Stairways and Walkways actually give you more for your money today, tomorrow and for years to come! Being of the suspension bracket type they are adaptable for *all* tank installations. With this bracket construction no ground supports are needed, and Columbian brackets are so made that they are easily adjusted for tanks of different levels.

Adjustable to Meet Your Needs—**Purchased for a definite tank installation today, Columbian Walkways can be used when this same installation is altered or on a different tank battery grouping. They are of sectional construction in 4-foot, 6-foot and 8-foot lengths. From these standardized units, walkways, branch walkways, etc., may be made up to meet your specific requirements. At any time other units can be added if desired, or removed, and the whole stair and walkway assembly may be dismantled and reassembled.**

Simple to Erect—**Columbian walkways are especially simple to erect as bolt holes in all parts are punched on standardized centers so that they always meet perfectly wherever the parts are joined together. Identifying marks are stamped into the metal of all parts, insuring quick and accurate assembly.**

Strong and Rigid—**Brackets are made of 4-inch channel of 5.4 lb. weight per foot and bolt directly to the tank. Walkways are made of 12-gauge copper bearing steel. Sides and ends of each unit are flanged down four inches and 4-inch Z-bars are welded to these flanged-down sides. Walkways are further reinforced and strengthened by ⅝-inch truss rod supports.**

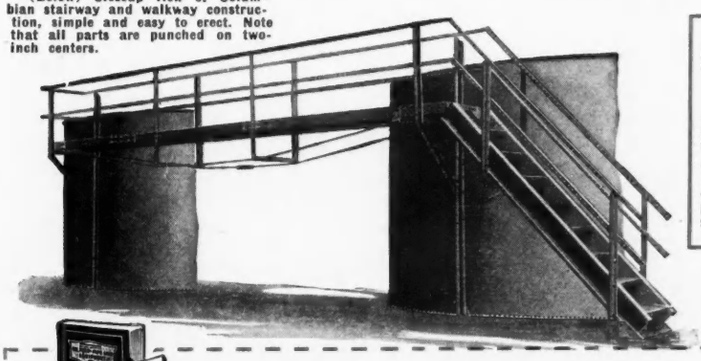
Stair and walkway assemblies are furnished either hot dip galvanized or painted . . . either with standard Columbian perforated non-skid treads or with arrowhead grating. Double hand rails for added safety.



● (Above) Here is a closeup of the Columbian walkway, bracket and stairway assembly, showing simplicity of design and strength of construction.

MAIL COUPON *now for definite specifications and prices on stairways or walkways you need.*

● (Below) Closeup view of Columbian stairway and walkway construction, simple and easy to erect. Note that all parts are punched on two-inch centers.



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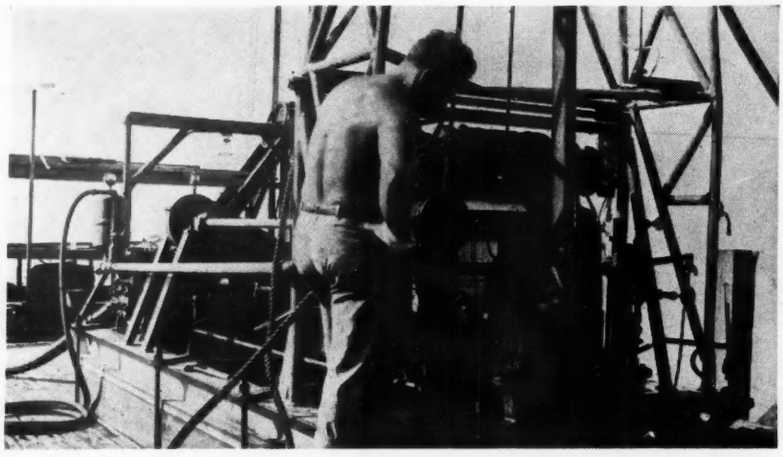


Small core-drilling outfit used in Galveston Bay for drilling shot holes. Extensive geophysical work is underway in this area

hole, the shooting boat withdraws only a short distance from the section of the casing above the water. The shock from the shot is so slight that it cannot be felt at the surface. After the shot, a small amount of water is forced from the casing by the pressure. The shock at the surface is not great enough to kill fish that may be near the mouth of the shot hole. An examination after each shot has not shown damage to marine life. The amount of dynamite used for each shot ranges from one-half to two pounds, but most of the shots require only the minimum quantity. Where a greater than the minimum quantity of dynamite is used, the shot holes are made deep enough to absorb the shock. It is regular practice to drill shot holes to the solid clay.

The equipment in use by Salt Dome Oil Company and The California Company includes a dynamite boat, a shooting boat, a larger recording boat, the drilling barge, a tug and a large and modern houseboat. The recording boat is equipped as well as the finest receiving trucks used on land. Placing geophones and stringing wire under water involves a much greater effort than similar operations on the mainland. The water ranges from six to nine feet in depth.

The small core drilling barge is one of the most complete built for this type of work, and from four to seven shot holes can be drilled and cased during a daylight run. The geophysical work is under the direction of Seismic Explorations. The small rotary drilling outfit is built as a unit, with the mud pump attached and driven by the single prime mover, a late type automobile engine. The preliminary shot holes are being placed in rows about one mile apart, but the detailing work involves a more intensive shooting program.

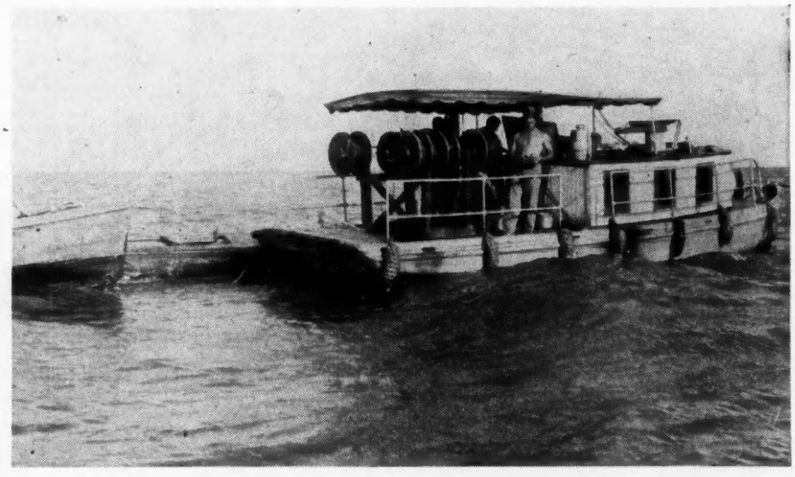
If structures are indicated by the geophysical work now under way, drilling will be done with large floating-sinking barges, such as are being used successfully in South Louisiana. The water in most parts of the bay is not too deep for this type of development and use of heavy barges will prevent pollution.

Humble Oil & Refining Company and The Texas Company, also holders of large state leases, are carrying out extensive geophysical programs in Galveston Bay and vicinity. These companies are using small charges of dynamite and are drilling the shot holes to a depth that will not permit the shock to reach the surface with an intensity that can destroy marine life.

In California ocean drilling has been a success in several areas. In the Elwood and Rincon fields a large number of wells have been drilled in the Pacific Ocean under adverse conditions. Although public sentiment was not entirely favorable to development of ocean tracts when the state granted a number of the original leases several years ago, almost all opposition has been removed during the past two or three years, except in the congested beach areas. The pollution problem has given little trouble during the development of the Rincon and Elwood fields, although a public bathing beach is located near the former field.

At Elwood, marine drilling has reached an advanced stage, and the piers recently built to accommodate several wells represent a new type of oil field development. As many as seven wells have been drilled from one compound pier foundation, and the same practice easily could be applied to operations along the coast of Texas or Louisiana. Directional drilling has been employed to bottom the several wells at the required location in the producing zone. In shallow bay waters it might be possible to drill several wells from one location, where barges are not used. California marine operations have been carried on largely from pier locations, although at Huntington Beach ocean tracts have been developed by drilling slanting holes from the mainland.

Along the Texas-Louisiana Gulf Coast it will not be a difficult matter to develop the shallow bay waters, and with reasonable care pollution will not be a problem under any normal condition.



Recording boat used in connection with geophysical work in Galveston Bay

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With many stabilizers or bit guides there are two forces acting in opposite directions—the weight applied to the bit having a downward tendency and the resistance of the guide or stabilizer, caused by its design, forcing upward. **A Sievers Reamer** eliminates these opposing forces.

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EXAMPLE: A given amount of weight is placed on th digging bit—1, 2, 3 or 4 points shown by the weight indicator. With a Sievers Reamer acting as a stabilizer (above bit or drill collar) the given weight *(no more or no less)* is actually applied to the digging bit.

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SIEVERS REAMERS

Drilling-In Under Pressure in the Oklahoma City Field

By J. S. ROSS
Otis Pressure Control, Inc., Oklahoma City.

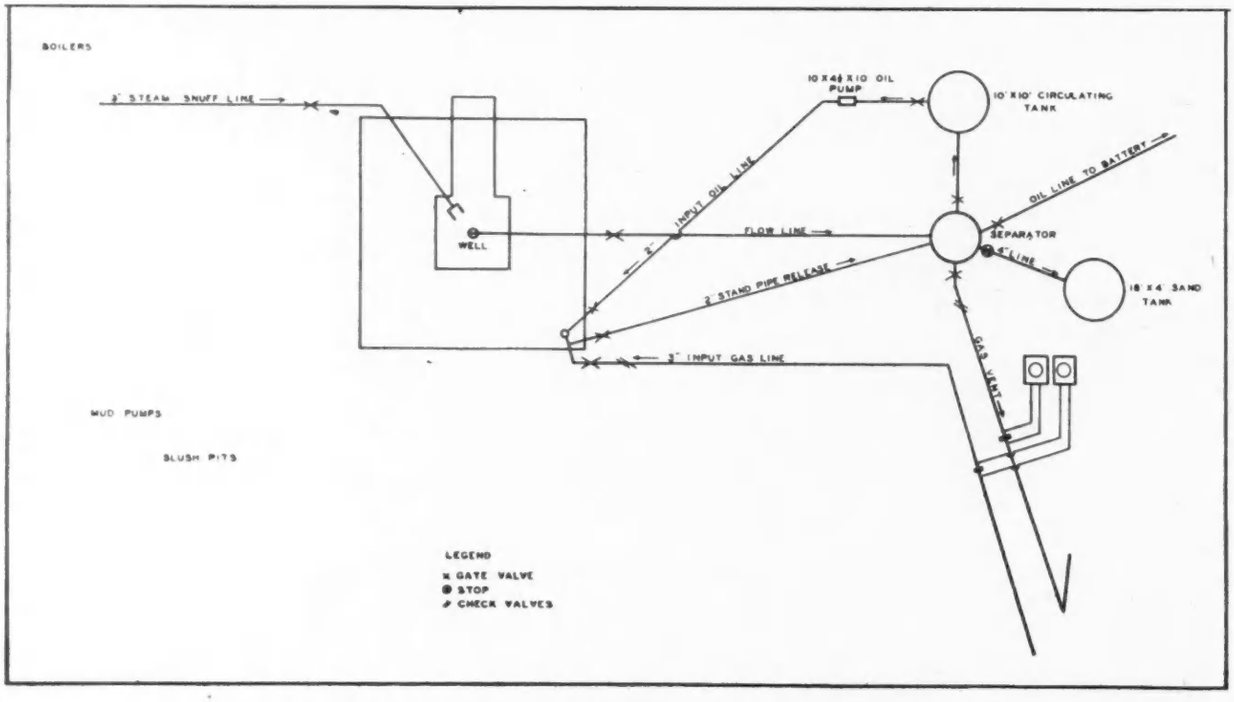
"DRILLING-IN under pressure" is an improved well completion practice coming into popular use in many rotary areas. Within the past year almost all completions in the Oklahoma City field were made by this method and today it is the accepted practice in the city's new extension field or so-called "Mansion District."

This comparatively recent swing from one completion method to another is attracting unusual interest, not only among oil and gas operators, who are particularly concerned with the comparative merits of the new method, but also among drilling contractors, supply men, engineers and geologists. The method has introduced new drilling equipment and new operating technique in a field that produces from a loosely cemented and very porous sand.

The expression "drilling-in under pressure" implies the use of a circulating column of oil and gas having a weight so light in respect to the formation pressure that the formation may produce oil and gas while drilling is in progress. This, of course, is in contrast to the customary drilling procedure under which the circulating column of mud is heavy enough to overbalance the formation pressure to prevent any possibility of the formation producing into the mud column and allowing the well to "come in" prematurely.

This method of drilling-in has several important advantages over the older method. While drilling-in under pressure the flow of oil and gas is always from the formation and into the drill hole, starting the moment the drill penetrates the top of the productive formation and continuing until the well is completed. No mud ever reaches the face of the sand. This feature eliminates any possibility of the sand becoming clogged with foreign material and permits a continuous record of the well's capacity to produce.

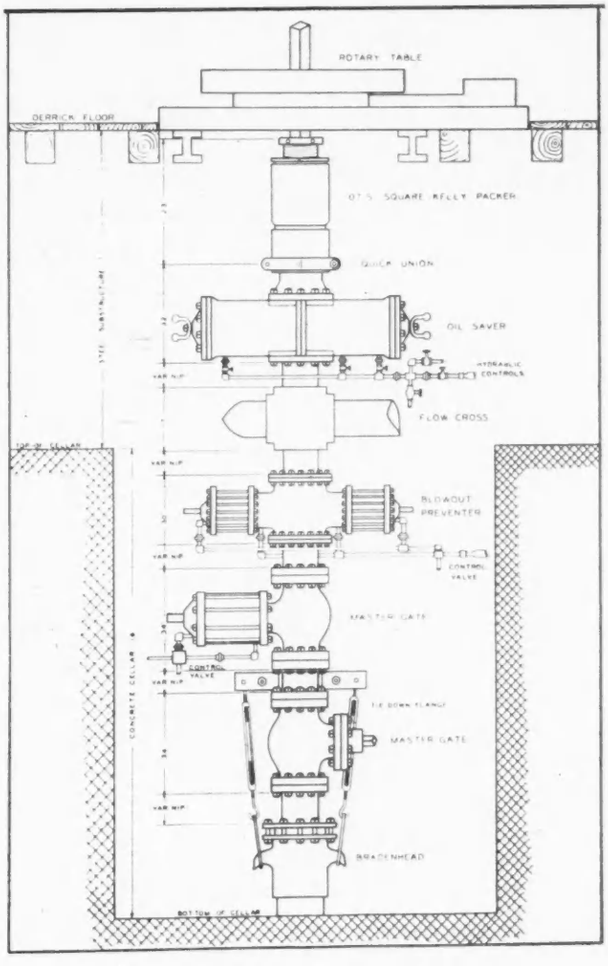
Because the pressures in the Wilcox sand have declined to a point where the use of a circulating column of mud or oil is out of the question, this method of drilling-in is particularly applicable to the Oklahoma City field at this stage of its development.



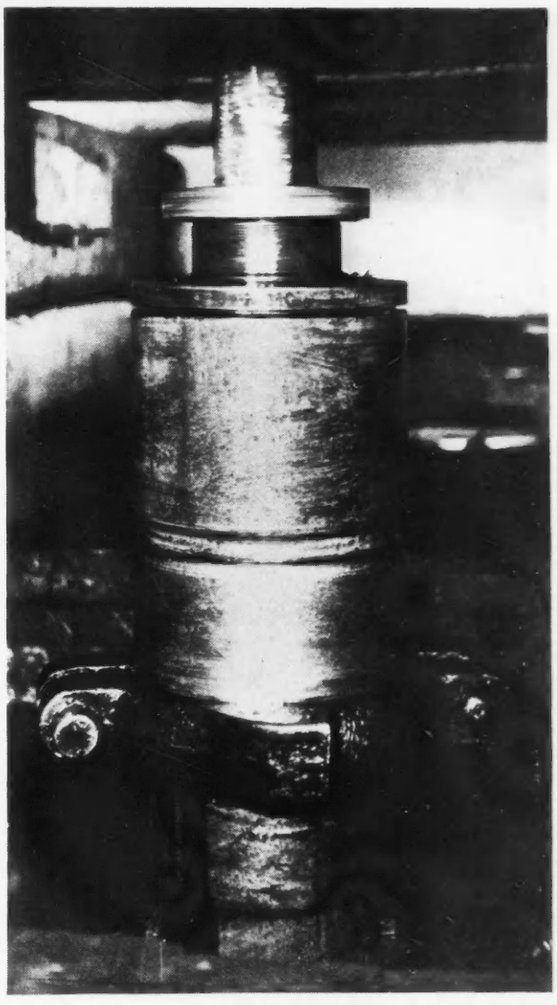
Flow diagram for pressure drilling—Mansion Area, Oklahoma City.

In the so-called Mansion Area, which is now the center of the present intensive development, bottom-hole pressure ranges from 500 to 600 pounds per square inch; and southward, towards the older part of the field, it is considerably lower. A column of drilling mud 6300 feet deep exerts a bottom pressure of about 3000 pounds per square inch, and if this excessive pressure is subjected to the relatively low pressure sand, serious penetration of the sand obviously takes place. Often there is a complete loss of circulation, and the clogging of the sand by the mud results in the well being a poor producer. Experience has shown that the use of a circulating column of heavy oil for drilling-in purpose is likewise undesirable, since oil is even more penetrating than mud and seldom can its continuous circulation be maintained. Furthermore, wells drilled in with heavy oil have proved to be less productive than those drilled in under pressure.

While drilling-in under pressure, cuttings are carried rapidly to the surface and clean samples are obtainable, permitting more accurate logging of the formation. This feature is particularly appreciated by the geologist. By metering the volume of the output gas and gauging the oil produced as drilling progresses, the capacity of the formation to produce oil and gas can be determined, foot by foot.



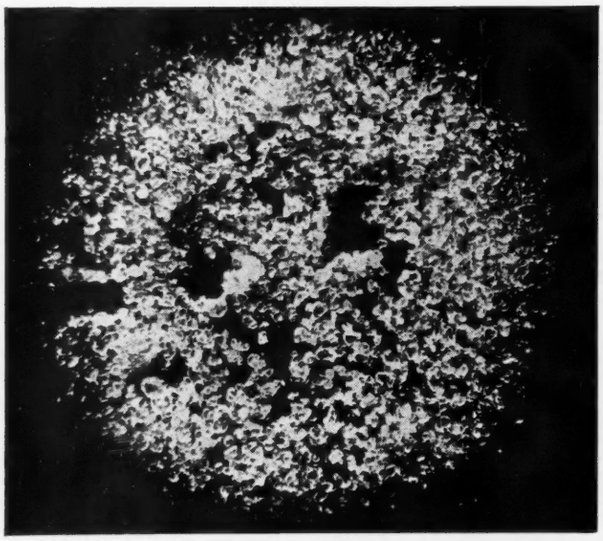
Pressure-Drilling Hook-Up



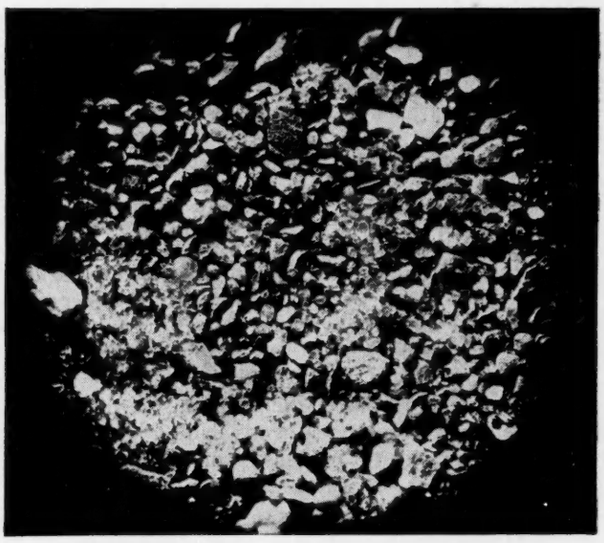
Pressure-Drilling Head

The Wilcox sand, which in some areas attains a thickness of nearly 200 feet, contains sections in which the sand is very soft and loosely cemented. While the well is flowing, these prolific and highly saturated strata yield large quantities of sand. Formerly, when these strata were drilled in by the older method, the walls of the hole were supported temporarily by a mud sheath, and after the well was completed and on production, they would slough off, clogging the hole. This necessitated an early clean-out job. However, under the present practice of drilling-in under pressure, all caving material from the soft walls of the hole is finished in a cleaner condition. In one instance it was estimated that approximately 60 barrels of sand was produced per hour during drilling. Obviously, the greater part of this sand came from the walls of the hole.

Drillers observe that more hole per bit can be made when drilling-in under pressure than when drilling with a circulating column of mud. Probably this should be attributed to the more rapid removal of cuttings from the region of the bit and to the jetting action of oil and gas across the face of the sand. Another factor that may account for this is that cut-



Fine and uniform sand from a well drilled-in under pressure



Coarse cuttings from a well not drilled-in under pressure

tings cannot settle to the bottom of the hole during a round trip of the drill pipe.

Methods of Drilling-In

The operation of drilling-in under pressure is dependent upon some form of packing arrangement between the casing and the drill stem while the latter is undergoing both vertical and rotational movement. One method employs a string of flush joint drill pipe and a round kelly joint, which rotates in a rubber stuffing box. An adjustable gripping device on the rotary is used to drive the round kelly.

Another type employs the customary outside coupled drill pipe and the conventional square kelly joint. Packing around the kelly joint is accomplished by means of a fully self-aligning drilling head, which is coupled to a pressure-operated oil saver and blowout preventer by means of a quick union. This drilling head contains a core through which the kelly moves vertically, but which is rotated with the kelly through the action of drive bushings. A set of molded packing inside the core prevents leakage past the kelly and a set of pressure-sealed packing placed between the rotating core and its retaining bowl prevents leakage past the core.

This latter packing is so constructed and placed that it maintains a seal around the core regardless of any deflection from the vertical. Self-aligning bearings take up the vertical thrust of the core due to pressure beneath and permit it to wobble along with the kelly joint as the latter rotates.

A typical hookup of well connections and control equipment for pressure drilling-in in the Oklahoma City field calls for one and sometimes two blowout preventers. One of these always is placed below the cross as a safety measure in case the latter cuts out. The other blowout preventer, the use of which is optional with the operator, is placed immediately above the cross. Above these are connected the oil saver, the quick union and the drilling head. Good practice calls for the use of two gate valves, these of course being in the cellar.

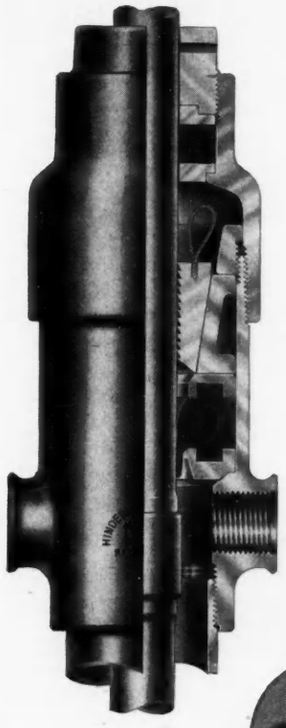
The erection of derricks on steel substructures in the new extension zone eliminates the necessity for elevating the rotary on cribbing to provide ample space for the installation of one blowout preventer and the necessary control equipment below the table. However, in the event two blowout preventers are used, blocking up the rotary generally becomes necessary. One operator has provided a portable steel structure on which to conveniently set up the rotary. Since it is the customary practice to set the cross at ground level, a 14 or 16-foot cellar provides ample room for connecting the gate valves and the blowout preventer.

The selection of the proper size of drill pipe for drilling-in under pressure is an important matter, particularly in the low pressure areas. It is found that 3½-inch drill pipe gives the most satisfactory results because of the fact that this size drill stem offers less restriction to the flow of oil and gas. This is governed to some extent by the size of casing. In the north extension field both the 8⅝-inch and 9⅝-inch casing strings are cemented on top of the Wilcox sand.

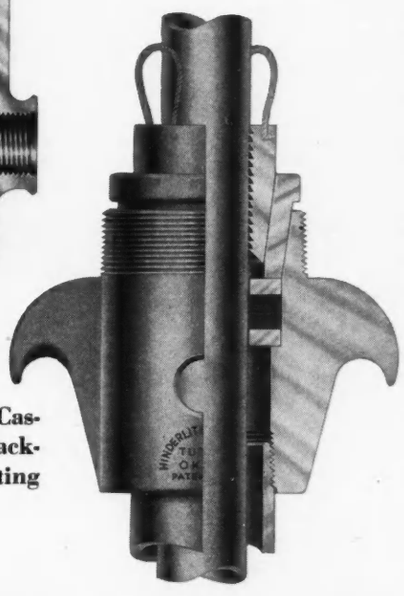
Preparations and all necessary connections for drilling-in are made during the week the cement is setting. This includes moving in a 100-barrel circulating tank and a 10x4¼x10 circulating pump, which is connected to the standpipe through a check valve; connection of a high pressure gas line, with meter loop, to the standpipe, also through a check valve, and excavating or installing a sand pit. It is the customary practice in the residential district to spot the oil and gas separator at the well before spudding in the well, and to use it during drilling for the exhaust steam vent. Consequently it is only necessary to complete the flow connections, oil lines and bleeders. A steel hose is substituted for the customary rubber rotary hose. Float valves are placed in the drill stem, close to the bit. Often as many as three are used as a precaution against failure due to cutting out.

The bottom section of a steel tank makes an ideal pit for trapping sand bled from the bottom of the oil and gas separator. Such a tank measures about 4 feet deep and 18 feet in diameter, and is buried flush with the ground. Surplus oil accompanying the sand is picked up from the sand pit by a small auxiliary pump. In some instances a suction line from

Deepest WELL IN SOUTH TEXAS Controlled by HINDERLITER CASING HEAD HOOK-UPS



HZ—Three-In-One Casing Head Hook-Up with Top Packing Gland.



HJ—Bushing Type Casing Support and Packing Head with Lifting Ears.

This well drilled by the Hamman Exploration Co. near Bay City, Matagorda County, Texas, is producing from 9,439 feet. 8,300 feet of 7 inch 26 lb. casing. Casing pressure 2,950 lbs. Tubing pressure 1,900 lbs.

Hinderliter Equipment — Sold by Supply Stores

HINDERLITER TOOL CO., TULSA, OKLAHOMA

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the circulating pump is provided for this purpose. As a precaution against sand choking, a water jet installed in the bottom separator connection has proven particularly helpful. The use of a quick-opening valve on the bleeder line is advisable.

As soon as the preparatory connections are completed, the cement plug is drilled out and the column of mud is replaced with water. The drill pipe is then pulled out, a fresh bit screwed on, and the pipe run back into the hole. The water is blown out by stages as the drill stem is lowered through the oil saver. The amount of oil required to establish circulation varies with the diameter of the casing and the size of the drill stem. Generally, the rate of circulation ranges from 20 to 30 barrels per hour, depending upon the size of the casing and the drill pipe. With a 3½-inch drill stem in a 9-inch casing string, 30 barrels of oil is required to start uniform rate circulation of 20 barrels per hour with approximately 2½ million cubic feet of gas per day. The input gas, which is under a line pressure of about 600 pounds per square inch, is metered in all cases. Pitot tube measurements are taken periodically in the vent line leading from the separator. A more accurate check of the output gas is obtained by an orifice meter installed in the vent line.

In wells where the casing has been cemented in the top of the sand, which is frequently the custom in the north extension field, the flow of oil and gas from the formation may start as soon as the water is blown out, even before actual drilling is commenced. Often a gas cap is encountered below the shoe, which increases the velocity of the circulating column of oil. When the natural flow of formation gas and oil is sufficient to maintain circulation, it is possible to discontinue the injection of gas and to slow down the circulating oil pump. In some cases the oil pump is shut down altogether and only the injection of gas is continued. It is good practice, however, to maintain the circulation of either oil or gas through the drill stem in order to keep the bit cool and from becoming clogged, for even though the formation is producing at a high rate of flow it is possible that the bit may be drilling in a hard, impervious stratum below.

Experience has shown that the volume of formation gas decreases and the quantity of formation oil increases as the drill penetrates the sand. By close check of input and output meter readings, a safe point of penetration is determined, below which the well may no longer produce by natural flow. In other words, if the well is drilled too deep in the sand, the amount of oil entering and rising in the hole constitutes too great a load for the formation gas to raise to the surface under the existing low bottom hole pressures. Therefore, it is desirable to stop short of this depth. When this point is approached it is the customary practice to withdraw the drill pipe and take a potential test, the result of which determines the advisability of drilling deeper.

The allowable established by this potential test permits the running of oil already produced and of any additional oil that may be produced during any subsequent deepening operation.

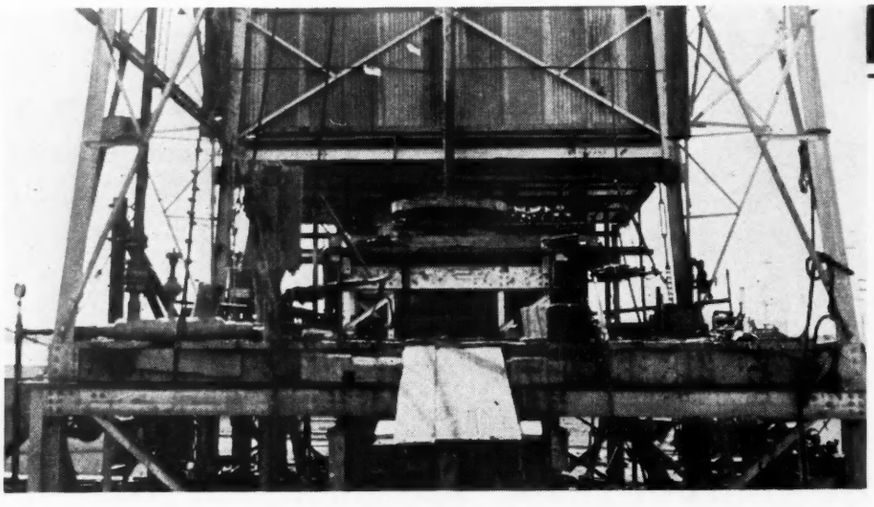
It is seldom necessary to snub drill pipe out of the hole in the Oklahoma City field, but should the necessity arise, equipment for this purpose is maintained in the field.

The time required to complete a well under pressure in the Oklahoma City field varies from four to six days, including rigging up and laying down drill pipe. Drilling of the sand itself is often very rapid. In some instances as much as 80 feet of hole is made in three hours. Such haste, however, is not the customary practice, since undue speed does not permit thorough testing of the formations at all depths.

Cutting of the cross, which often gives considerable trouble, may be somewhat lessened by pumping oil into the stream of flow just below the cross. The use of large diameter flow connections between the well and the oil and gas separators, and the reduction of the number of sharp angle bends have accomplished much in reducing the cutting out of surface connections.

Wells in the north side of the field come in flowing from 5000 to 25,000 barrels of oil and from 10,000,000 to 120,000,000 cubic feet of gas. This output is handled successfully with equipment and methods now used.

Completion with pressure equipment in the sections now under development is a radical departure from the early methods that called for use of drilling mud. Most of the wells now being drilled will be completed under pressure as a precaution against contamination of the producing zone and possible loss of oil at the surface.



Steel super-structure used by an Oklahoma City operator for completion under pressure

PRACTICAL VALUE OF

Subsurface Pressure Surveys

IN OIL WELL OPERATION

By W. H. OSGOOD, Consulting Engineer
Pasadena, California

THE determination of subsurface pressures in oil wells provides information generally not otherwise available, which experience has proved is a valuable guide to more profitable operation. The information may be of a positive character indicating that full capacity to produce is not being realized, or of a negative character which indicates that no greater quantity of oil is available and therefore further expenditure in trying to secure greater production is unwarranted.

The application of data secured from subsurface surveys, outside of a few of the major operators in California, has received more attention in the Mid-Continent and Texas fields where the technique of making the surveys and the interpretation of the results really originated. But the conclusions applicable to the single stratum production of these regions are greatly modified in California fields by the multiple producing strata of a single zone and the problem becomes complicated when two or more zones are open to the same well.

The data resulting from a subsurface traverse are the pressures existing at any number of points from the top to the bottom of a well, or to as low a point as it is physically possible to run the recorder. The reservoir pressure is taken to be equivalent to the maximum pressure developed opposite the producing formation in a well, when the well has been closed in long enough for conditions to have approached equilibrium.

Figure 1 shows a method of plotting the data secured from the traverses of a hypothetical well. The well-head elevation and the depths of the main points of interest in the well are plotted on the vertical scale. Pressures, and temperatures, if taken, are plotted to the horizontal scale. All small circles, except those at the well-head elevation, represent the measured pressures at the depths shown; all well-head pressures are gauge pressures. Curve A-B-C-D shows the depth-pressure distribution of a static (closed in) traverse. Curve F-G-H shows the pressure distribution within the well while flowing at some particular rate end, similarly, curves J-K-L and M-N are flow curves for successively higher rates of flow.

The items of practical value that are derived from the data obtained from subsurface pressure surveys may be divided into two general classes, (a) the items within the control of operators which affect the production of their individual wells and (b) the items that determine field and reservoir conditions which have an influence on the operating methods and policies. The more important items in each classification are as follows:

Individual well data:

1. Initial formation pressure.
2. Productivity factor.
3. Potential production.
4. Fluid levels.
5. Tubing depth.
6. Effective depth of well.
7. Optimum production rate for greatest ultimate recovery and lowest lifting costs.
8. Change from gas lift to pumping.
9. Effectiveness of pumping equipment.
10. Compressor requirements for gas lift installations.
11. Cleaning out operations.

Field and reservoir data:

1. Existence, extent, and movement of a gas cap.
2. Pressure maintenance to secure minimum lifting costs and regulate encroachment of gas and water.
3. Direction of drainage.
4. Probable areas of best production.
5. Compressor requirements for repressuring operations.
6. Available reserves as a basis for proration.

THE accompanying paper thoroughly discussed all the possible uses to which data obtained in subsurface pressure surveys may be used. It was presented at the Spring Meeting of the Pacific Coast District, American Petroleum Institute, Division of Production, held in Los Angeles, April 14, 1936.

Individual Well Data

1. *Initial Formation Pressure*: There is only one chance in the life of any well of determining the initial pressure existing in each formation, and that chance occurs only when the well is being drilled. The use of a pressure recorder in conjunction with the formation tester gives the pressure of the formation open to the tester. This is much more accurate than estimating the pressure from the number of joints of the drill pipe filled by a mixture of mud, water, and oil of unknown density and temperature which the formation pressure is able to sustain.

2. *Productivity Factor*: The productivity factor is defined as the number of barrels of oil produced per day for each pound difference between the closed-in (static) and producing bottom-hole pressures. It is sometimes called the productivity index. This difference in pressure, the differential pressure, causes the fluid to move from the reservoir into the well; the amount of fluid that will move depends upon many factors pertaining to the fluid and to the reservoir, but, in general, the productivity factor may be taken as a measure of the average permeability and the thickness of the producing zone adjacent to the well.

In the past, the productivity factor has been based on the oil produced, but the more logical basis, which is now being recognized as better, is the total volume of the reservoir's contents produced. The total volume

produced includes all water, oil and gas reduced to its volume under the reservoir conditions of pressure, temperature, and solution[1,2]. The main obstacle to this practice is the present lack of definite knowledge as to the conditions of solution and the formation volume of the gas in the reservoir.

An initially low value of the productivity factor when compared to the values for nearby wells, may indicate that the well has not been thoroughly cleaned out, for if any mud remains on the face of the producing sand and any water has penetrated into the sand, the permeability will be lowered. The decrease of the productivity factor with time may indicate the clogging up of the perforations. On the other hand, a gradual increase of the productivity factor may indicate the establishment and cleaning out of drainage channels to the well. A field or lease map of the values of this factor should indicate the areas of low and high productivity, and when such a map is used in conjunction with a contoured pressure map, it may be possible to determine the cause of low productivity[3,4].

In Figure 1, the values of the productivity factor would be the amount of production for any of the flow curves, say, the curve J-L, divided by the difference in pressure between C and L.

One of the advantages of the productivity factor is the fact that it is useful and available under any degree of production curtailment.

The advantages to be gained by the use of a depth pressure traverse instead of the normally used surface pressures for determining the productive factors are apparent when it is considered that the surface pressures are not the same as the formation pressures, and are greatly affected by many unknown factors such as the height and density of the fluid column, frictional losses, and heat losses. Most of these unknown factors are eliminated by measuring the pressure at the bottom of the well, and hence more reliable data are obtained. If there were no other practical application of depth pressures, this use alone would readily justify the expenditure required to make measurements. A typical example of the saving that may be effected by the use of this type of information is shown by the following assumed conditions: A well is completed in a known highly productive zone and the initial production obtained by natural flow is considerably below expectations. Without bottom-hole pressure data from which the productive factor may be determined, the operator, in an attempt to increase production, would probably replace the tubing with a larger string to reduce the flowing pressure. This operation, including either killing the well or pulling and rerunning the tubing under pressure, would cost from $3,000 to $10,000, depending on the material and equipment available for the purpose, and would be a direct loss if no additional production were obtained. By the use of the information available from the depth pressures obtained at various rates of flow or the productivity factor, expenditures of this type can be prevented and more definite information obtained as to production that may be expected by any changes in the surface and subsurface equipment.

3. *Potential Production*: The capacity to produce, or the potential production of a well, for all practical purposes is the daily quantity of oil that the well will yield. The open flow test, with the attendant work and expense of preparation and the resulting hazards from operating a well at its maximum possible rate of production, was assumed to give the value of this potential, but due to the existence of so many modifying factors such as the size of the flow string, length of the shut-down period prior to the test, method of producing, the potential production was always open to question[5].

It has been determined that, as a result of subsurface pressure tests, the productivity factor multiplied by the static bottom-hole pressure, with deductions made from the latter item for the necessary surface pressure for handling the oil and for the pressure loss within the flow column, will give the productive capacity of the well. This may be done graphically, as shown in Figure 1, by moving the depth-pressure curve M-N over to the position P-Q, where a surface pressure of 40 pounds per square inch is assumed as being sufficient to handle the production at the surface. In reducing the well-head pressure from point M to point P, the bottom-hole pressure would be reduced from point N to possibly point Q, a somewhat greater pressure difference than the surface change. This bottom-hole difference in pressure may best be arrived at by using the ratio of the bottom hole differentials to their corresponding production rates, determined from the runs shown by the curves F-H, J-L, and M-N.

Well potentials have also been determined by plotting the differential pressures against the corresponding rates of production and extrapolating the curve, which is usually plotted to such coordinates as to make the curve a straight line, to the maximum available pressure at which point the corresponding indicated production rate was taken as the capacity of the well. [6,7,8]. The references show examples of how some of these rate-differential curves have been plotted. There is probably a definite set of coordinates for each type of control as described by Herold, but no one set is applicable to all types.

And finally, quoting Kelly, "Relative productivity between wells is believed to be proportional to productivity index when multiplied by static bottom-hole pressure."[4]

4. *Fluid Levels*: The depth of the fluid level in or below the tubing of a well is shown directly on a plot of the pressure data obtained by a traverse, such as at point D of a static run and point G of of a producing run. In a pumping well, the pressures shown to exist by a recorder located in or below a gas anchor, may be changed into terms of fluid depths and plotted, if desired. If a fluid level exists while a well is producing by flow or gas lift, a traverse will give the data from which its location in the tubing can be determined for that particular rate of production. The pressure in a column of liquid is greater for any unit of depth than in a column of gas, so the depth pressure curve shows the line of pressure in the liquid lying at a flatter angle than the steeper line for the gas column. The fluid level location is at the depth indicated by the intersection of the liquid and the gas lines.[9] If there is any water or mud in the bottom of a well, its presence is shown if some pressure readings are made therein, by a slope of the curve flatter than for an oil gradient.

If a fluid level exists in the annular space between the tubing and the casing, its location can be approximately determined by calculations based on the well-head and depth pressures. It is understood that one of the major companies has a method directly measuring this level.

In general, the relationship between the well-head pressures, as shown by the surface gauges, and the bottom-hole pressure of a well is a matter of the location of the fluid level in the well; the higher the fluid level, the greater will be the counterbalancing action on the bottom-hole pressure and, therefore, the lower the pressure remaining to be recorded by the surface gauges.

Methods of determining the fluid levels by computation are available, and if the basic data, such as the

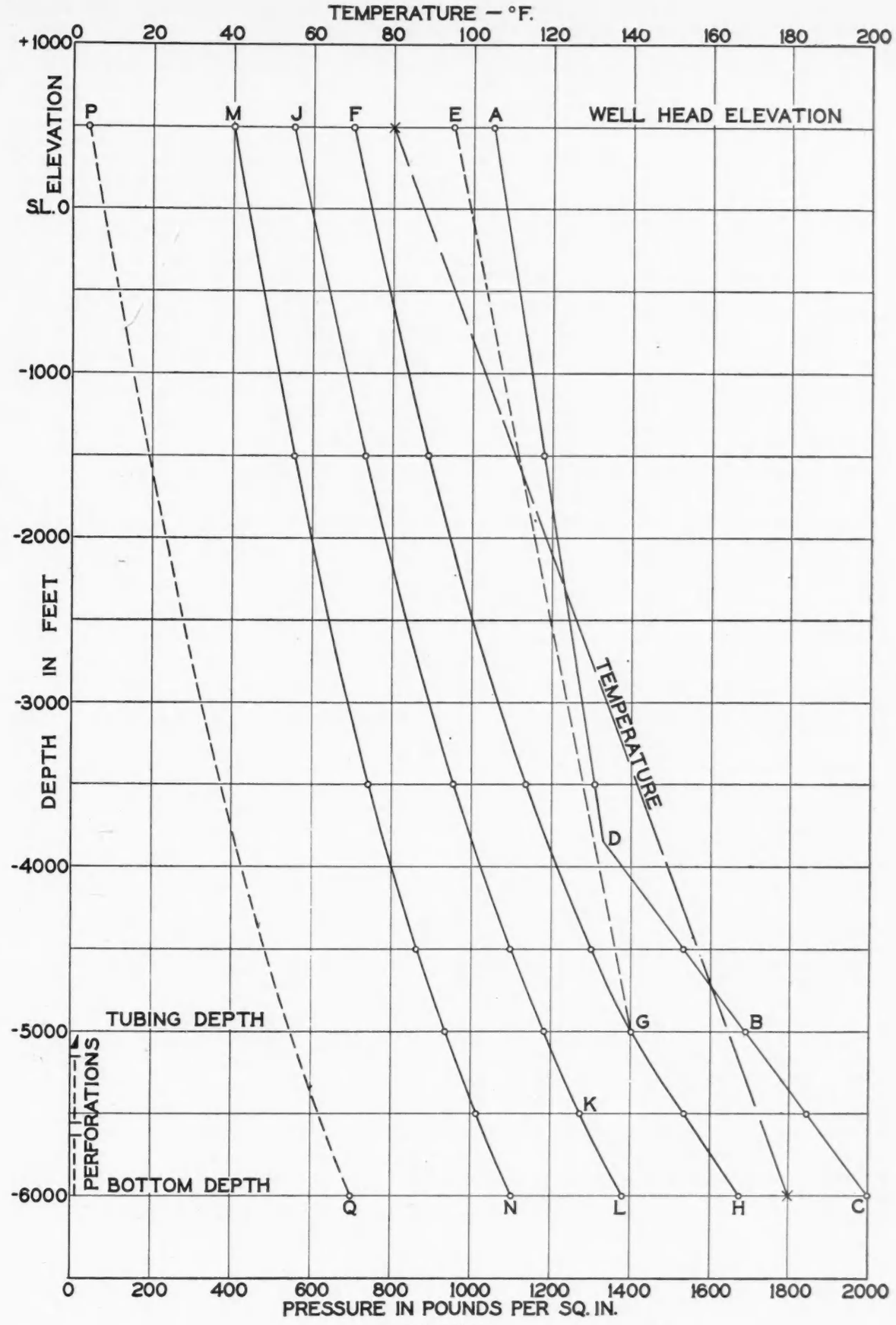

TEMPERATURE — °F.
0
20
40
60
80
100
120
140
160
180
200
+1000
SL. ELEVATION
0
-1000
-2000
-3000
-4000
-5000
-6000
DEPTH IN FEET
P
M
J
F
E
A
WELL HEAD ELEVATION
TEMPERATURE
D
G
B
K
TUBING DEPTH
PERFORATIONS
BOTTOM DEPTH
Q
N
L
H
C
0
200
400
600
800
1000
1200
1400
1600
1800
2000
PRESSURE IN POUNDS PER SQ. IN.

FIGURE 1

density of the gas-oil mixture and of the gas itself under the conditions obtaining throughout the depth of the well, are correct, the fluid level can be located.[10,11]

5. *Tubing Depth*: Initial tubing depth can be estimated from the pressure data secured during a formation test, it being remembered that the particular pressure being measured will be modified by the pressures in any other formations that may be open to production. While this information can assure a submergence relative to the static column of fluid, the fluid level may drop to the bottom of the tubing when the well is flowing. Pressure traverses taken at a number of different rates of flow should show the corresponding movement of the fluid level and, therefore, the proper depth for the tubing in order to have its lower end in the oil and not in the gas part of the column.

In pumping wells, the pressure data may be changed into terms of fluid head and the most practical pump depth then determined as outlined under subheading 9, "Effectiveness of Pumping Equipment."

6. *Effective Depth of Well*: The depth of the pressure recorder is known at all times while making a traverse, usually by means of a measuring device. Any accumulation of sand in the bottom of the well is shown by the depth to which the instrument can be lowered. It is sometimes possible to tell whether this sand is packed tightly or is loose. In either case, the depth of the perforations equivalent to the depth of the accumulated sand has been made less effective for the production of oil. By the use of the so-called "dummy bomb," which is nothing but a small bailer, samples of any material existing at the bottom may be secured. The presence of any water can be detected even though no cut is shown by the production.[12] These items of information are mentioned as being available incidentally, while a well is rigged up for the pressure measurements.

7. *Optimum Production Rate for Greatest Ultimate Recovery and Lowest Lifting Costs*: The greatest ultimate recovery from a well, and also the extension of a well's flowing life for the longest possible period, add to the financial returns to be secured. These results are secured through the maintenance of the reservoir pressure at the highest possible value[13,14]. This subject is still in an indefinite stage of development and only the most general statements can be made, but the work is progressing and definite principles may be available in the future.

Pressure surveys at intervals show the decline in the reservoir pressure resulting from the total production of the resevoir's contents, the oil, gas, and water, during that interval. The higher rates of production reduce the reservoir pressure much faster and with geater and more uneconomic expenditure of energy than do the lower rates; there is usually some moderate rate of production at which the ultimate production of oil through the most economical use of the reservoir energy should be a maximum[15]. It is believed that the analysis of the differential pressure-rate of production curve may show the rate of production at which the minimum amount of pressure utilization per barrel of production would occur.

The flowing life of a well depends upon the pressure in the reservoir and upon the amount of available gas. The maintenance of the pressure for this purpose alone by the reduction of the rate of production will prolong the period during which the minimum lifting costs will prevail. If the solubility relationship of the gas and oil produced by a well or a field has been determined[2, 16, 17] these data used in conjunction with the drop in pressure occurring with the cumulative production can be made the basis for estimating the flowing life of a well or property.

8. *Change from Gas Lift to Pumping*: Among the possible methods for determining when to change from a lift to pumping operations, the following method is available: Depth pressures should be taken while a well is being produced by the gas lift and the productivity factor determined with the well producing near its maximum rate. The determination of the "fill-up" curve or the data relative to the various rates at which the reservoir supplies oil to the well against various back pressures existing opposite the producing zone, gives the data on the amount of oil that is available. By computing the cost per barrel of recovery for the two methods of operation, the relative economy can be found, and the time at which the change should be made determined[18]. The main consideration in this particular study are, (a) the pressures that are held on the producing formation and (b) the volumetric capacity of each method of production.

9. *Effectiveness of Pumping Equipment*: The term "effectiveness" is used by Marsh to indicate the ratio of the pressure utilized in producing a well to the total pressure available for that purpose. It is the differential pressure divided by the static bottom-hole (reservoir) pressure[19].

This measure of operating conditions is of particular value in the study of pumping well installations, though it is applicable to all methods of production. From this factor for a pumping well, the amount of fluid available can be determined, this giving the information as to the size of the pump, the length of stroke, and the strokes per minute to be employed. The depth at which the pump should be set is controlled by the necessary pressure conditions in a well. Generally, the lower that it is possible to place the pump, the greater the production, but this consideration is modified by such items as maintaining submergence, prevention of sanding up, the reduction of water by maintaining some back pressure on the producing formation, etc.[20] The usual system of installation in a pumping well is the setting of an arbitrarily selected size of pump at some depth which, through a series of tests and changes requiring a considerable expenditure of time and money, appears to yield the greatest production. Even then it is not known whether the maximum possible production is being obtained. A fill-up curve drawn from pressure data secured in a well will show the quantity of fluid that the reservoir will yield for any practical pump depth[21],

10. *Compressor Requirements for Gas Lift Installations*: The installation of a new compressor plant for gas-lift operation requires knowledge concerning the starting and operating pressures required for any well and of the possible quantity of production, so that the volumetric requirements of the compressors can be determined. As is sometimes the case, the operator has a compressor which he wishes to use, if possible, with the sizes of cylinders already mounted, but at the most with one or two new cylinders. Then the problem is to set the tubing at such a depth as to secure the required submergence and volume of production within the capacity of the compressor, or if that arrangement would not be satisfactory, to determine what changes would be necessary to secure the possible production.

In either case, the change to gas lift operation should be anticipated while the well is still flowing and its pressure characteristics and productivity factor obtained. If the foregoing items of information are available, definite plans can be made with some assurance of obtaining a satisfactory initial installation and thus avoiding

the expense and loss of time incident to the trial and error method of determining the proper conditions.

In general, the volumetric requirements of a gas lift vary with many factors, but it is believed that the volume of gas required is primarily a function of the pressures used to start and maintain flow in the well.

11. *Cleaning Out Operations*: The natural pressure in a well opposite the producing formation should be determined prior to, and then not exceeded during any cleaning out operations which entail the use of pressure for maintaining circulation or washing, in order to avoid sealing the face of the producing formation and forcing water back into the sand pores.

Field and Reservoir Data

The main items of information that can be derived from the pressure surveys of individual wells which pertain to a lease or a field as a whole are based upon the pressure[22] and productivity factor maps used in conjunction with structural maps. The greater the amount of well pressure data available, the more valuable and useful will be the results obtained and the more specific will be the information concerning the influence of different production policies upon the results to be expected from any one well.

In some fields, the subsurface pressures are taken in each well at frequent intervals; in other fields, representative wells are selected and the pressures measured at regular intervals.[23, 24, 25, 26, 27, 28]

1. *Existence, Extent, and Movement of a Gas Cap*: When the data resulting from the static pressure traverses are plotted for the individual wells, the depth of the contacts of the gas and the oil are shown graphically in certain cases. If the well is in a gas-cap area and the tubing is above the top of the perforations, that is, above the top of the producing zone, the fluid level will be low and the well-head pressure high. The depth of the gas-oil contact as located in the different wells may be plotted and the extent of the gas cap estimated. Surveys made at intervals of time thereafter would show the movement of the edge of the gas area consequent upon the reduction of pressure due to the withdrawal of the reservoir's contents[29]. It may be possible to determine the rate of production at which the gas cap will not expand unreasonably.

The development of local gas caps resulting from too intensive withdrawals can be found in this manner. In fields such as the East Texas field where no free gas existed initially, since all the gas present was in solution, periodical pressure surveys of selected representative wells were made and the rate of production fixed so that the reservoir pressure would be maintained above the value at which gas would appear[30].

This subject includes, besides the purely engineering phase of determining the extent and movements of a gas area, the question of the equitable share of production for a gas area tract[29 31].

2. *Pressure Maintenance to Secure Minimum Lifting Costs and Regulate Encroachment of Gas and Water*: The lowest possible lifting costs obtainable during the life of a well exist during the flowing life. By maintaining the reservoir pressure at as high a point as possible and for as long a period as possible, the flowing production of the field will be prolonged, the expansion of the gas area prevented, and local areas of water encroachment avoided. In water drive fields, the rate of production should be low enough to allow the advancing edge water to maintain the pressure if this is economically feasible. Periodic pressure surveys show the changes in pressure distribution and serve as a guide to withdrawals for controlling the water encroachment, particularly any "fingering in," and the prevention of gas cap expansion or the development of local gas caps.

This subject covers such a wide field that those interested are referred to A.P.I. Production Bulletin No. 210, December, 1932, which contains papers on this subject by Wilde, McWilliams, Lacey, and Ritter. (Also [32, 33, 34].)

3. *Direction of Drainage*: Drainage, used in the sense of migration of reservoir contents across subsurface translations of property lines, is possible only from areas of relatively high pressure to areas of relatively low pressure. In using the well pressures for this purpose, it is necessary to refer and correct the individual well data to some common datum of elevation for purposes of comparison due to the proportionally higher pressures at greater depths in wells located down structure. A pressure contour map shows the probabilities of any tendency for drainage.

Pressure "sinks" which have been caused by intensive local withdrawals of the reservoir contents should be avoided for they naturally create drainage from surrounding areas, particularly in areas having high productivity factors.

While drainage is usually considered in terms of oil that may migrate, the mobility of gas makes it the principal migrating fluid. A high gas-oil ratio well producing an amount of oil equivalent to that produced by a low gas-oil ratio well probably sets up a reservoir pressure gradient in favor of itself due to its taking more than its share of the reservoir's contents. And since the pressure gradients within the common reservoir result from the venting and withdrawal of the fluid therein, it would appear that to prevent inequitable production, equivalent amounts of the reservoir's contents would have to be produced by offset operators rather than equal amounts of oil alone[35, 36, 37]. This again brings up the fact that volumetric withdrawal of the reservoir's contents is the only basis for equitable curtailment since the energy in the reservoir is directly dependent on the gas pressure available.

4. *Probable Areas of Best Production*: Areas from which the most prolific and profitable production is to be obtained are naturally those having the highest productivity factor, i.e., the greatest permeability, and the highest reservoir pressure. With maps showing the distribution of these two factors, the most prolific areas may be indicated, areas for future development ascertained, and drilling policies formulated, depending upon an operator's requirements. It should be mentioned that, in some cases, high bottom-hole pressures may precede the front of an encroaching water drive; any such item must be considered in connection with the pressure indications.

Most of the proration work done on the basis of the data secured through subsurface pressure surveys lends itself to the study of the productivity of the tracts and their wells. This type of work should be of real value in studies concerning further development and the valuation of developed properties.

5. *Compressor Requirements for Repressuring Operations*: As in the case of determining the required capacity and pressure of a compressor plant for operating a well on a gas lift, the pressure requirements of a repressuring plant can be ascertained by the subsurface pressure surveys. In this application, the volume consideration is usually settled by the amount of gas that is available and not by any certain amount being necessary.

The initial step of a project is a survey to determine the pressures existing at the formation to be repres-

sured, in the wells which may be used for input wells. This work is sometimes done by determining the fluid level with a bailer and computing the bottom pressure by the use of an assumed uniform density of the fluid column. Frequently, a trial compressor is set at the well, connected up, and the maximum pressure that the unit can generate is applied in an effort to determine whether this maximum is high enough for the requirements. Since this procedure requires both time and money, and with the possibility that the results may be of a negative character, it should be a standard practice to first determine the pressures as they actually exist and then omit the remaining work on any wells which are shown to be unsuitable for use as input wells, because of low productivity factor or high formational pressure.

6. *Available Reserves as a Basis for Proration*: There have been numerous systems of proration tried during the last few years. A popular system, judging by the continued use and apparent agreement thereon, has been to determine allowable production based in part on the pressure conditions found to exist in the reservoir[38, 39].

It is interesting to note how many of the apparently successful proration systems now in effect follow in part the original suggestions on this subject by Millikan[40, 41], Moore[42], Wilde and Moore[43].

The considerations entering into proration are so numerous, as shown by the various programs that have been tried and methods suggested, that the subject can only be discussed here to the extent of mentioning the part played by the subsurface pressure conditions. The Progress Report of the Topical Committee of the American Petroleum Institute entitled "Essential Engineering Factors in Allocation of Production," as published in the 1934 issue of "Drilling and Production Practice," is the most detailed and comprehensive study of the subject available. Its recommendations for a system of proration are based on the belief that:

> " . . . equity in a prorated pool is attained when each tract is allowed to produce currently an amount of oil in proportion to the remaining recoverable reserves pertaining to the tract."

Among the factors entering into that system are the productivity factor and the bottom-hole pressure. These factors taken together give the potential, and then, the bottom-hole pressure is used by iself as a factor for correcting the allowable production in case that pressure differences develop in the reservoir from the use of this system. A standard method of determining the mean effective formational pressure is needed in this connection.

It should be understood that while the use of the bottom-hole pressure and productivity index factors does not assure success or equity in any system of proration, they are the fundamental factors in the relative withdrawals and should therefore be included.

Some Future Applications

The following items, while not universally applicable at the present time, will probably be of great practical value in the future and are therefore mentioned here.

One of the items of importance is the energy analysis of flow problems being developed by Sage and Lacey[44, 45], under Research Project 37 of the American Petroleum Institute. The pressures and temperatures of the flowing fluid at the top and the bottom of the flow string are the controlling data for this analysis. The study of the design of flow strings will probably be based upon similar data obtained for different points throughout the depth of the flowing column of fluid.

Another future application deals with the estimation of underground reserves; the initial formation pressure and its subsequent changes will be important factors in this study. Methods of estimating reserves are being developed and some descriptions of the work done have been published but this subject will not be discussed here[46, 47, 48, 49].

In closing, thanks are extended to those who through their help, suggestions, criticisms and editing have assisted in the preparation of this paper.

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Economics of Oil Producing Practice

By C. H. LIEB, President
The Carter Oil Company

ONE astounding fact in the production of petroleum is the comparatively recent realization by producers that flowing production is the cheapest crude produced. Actually, about 1910 or later, operators endeavored to get a producing well to pumping as quickly as possible after completion. A well was not really considered to be completed until it was operating on the pump. Remarkable progress has been made, and it is most interesting to trace the developments in producing practice. It was not until about 1920 that producers began to take a serious interest in pressures and to begin to think a little about proper methods of handling oil wells. Pressure gauges were installed, and records were maintained of these pressures, which was quite an innovation at that time. There were desultory experiments with tubing of different sizes, as well as experiments with placing the bottom of the tubing string at different levels in the well. Probably the first important departure from customary procedure was about 1926, during the Seminole development, when gas lift and air lift were introduced and widely used. This was a practice of utilizing air or gas under pressure, transmitted either through the tubing or between the tubing and casing strings, to lift the oil rather than utilizing a string of rods to actuate a pump at or near the bottom of the hole. As a consequence, large quantities of crude oil were produced by air and gas lift, at a lower cost per barrel than could have been possible with other methods employed up to that time.

THERE are several important problems for the oil industry, and particularly the technical people within the industry, to perfect as rapidly as possible:

1. **Universal adoption of wider spacing, adapted to the peculiarities of each pool, unitization, and pressure maintenance as standard operating practices.**
2. **Education of public officials and the public indirectly interested in the oil business to the end that under the police power, the law of capture shall be so modified, certainly as to permit, and whenever possible so as to compel, the drilling and producing practices that are here advocated.**
3. **Persistent and consistent efforts on the part of the industry to improve operating efficiency and achieve lower costs and wider margin of profit on about the existing price levels for crude and products.**
4. **A better standard of professional ethics among the engineers and other technical people engaged in the oil business, and education of the executives as to the benefits from the practices advocated.**
5. **Establishing proration on a more scientific basis. Basing allowables on well potentials or flat rates per well are thoroughly unsound from scientific or economic viewpoints. My opinion is that proration should be the allowable per well coincident with a rate of withdrawal utilizing the reservoir energy to the greatest degree of efficiency. If the technologists in the industry can agree upon a uniformly accurate method of estimating reserves, perhaps allowables could be a factor of reserves.**

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This departure in producing practice definitely placed the engineer in the producing organizations. The engineer was in a position recently created, analogous to the acceptance of geologists in the oil business about 10 years previous. The engineer grasped the opportunity, and many developments took place rapidly, as a consequence. Drilling machinery was improved and tubular goods were perfected, both of which aided in deeper drilling being accomplished. Surface equipment for producing wells was redesigned, new equipment was brought out, and the entire industry became conscious of the engineer in the business.

We have indicated the year 1926 as marking the

real beginning of drilling and producing technology. After about that date, engineers studied more intensely the problems of the oil business and their recommendations were received more readily and put into effect. However, no startling discoveries of engineering principles at that time accounted for this acceptance of engineers and their work in the business. There had been a slowly effective educational process leading to this acceptance. Lewis, then with the Bureau of Mines, began his studies for the more efficient recovery of oil in 1915, and the Bulletin of the bureau embracing his conclusions was issued as early as 1917. The two important findings embraced in the Bulletin were these: (1) The function of gas dissolved in the oil was fully appreciated and clearly pointed out; (2) For ultimate recovery, he not only urged repressuring, but the maintenance of pressure. Henry Doherty completed his laboratory experiments in relation to the function of dissolved gases in 1922; sold the idea to George Otis Smith, of the Survey, and the two together prevailed upon President Coolidge to appoint his Federal Oil Conservation Board in 1924, where the extravagant waste of reservoir energy was the occasion of the appointment, and, among the data he had before him, was the release of oil in solution by the practices then prevailing.

About 1926, talent was seriously devoted to improvement of producing practices by commercial organizations. Studies were inaugurated on the occurrence of oil in reservoirs, the function of free and dissolved gases as propulsive powers, and consideration was given to the spacing of the wells. The man on the lease first began to include "gas-oil ratio" in his vocabulary. It was a few years later before we began generally to discuss bottom-hole pressures. With respect to practices applied to the production of oil, there was first an adaptation of the gas lift which was applied intermittently, and known as intermittent gas or air lift. It was at about this stage that some thought was growing that reservoir pressures might be maintained and all of the recoverable oil expelled by pressure existing or created in the reservoir. Consequently, we had experiments and actual application of maintenance of pressure and repressuring. Probably the most advanced engineering thought in the oil producing business today is the possibility of attaining recovery of all the oil in a reservoir by use of the energy inherent in that reservoir without the addition of any power from outside sources. To achieve this ultimate objective as closely as possible, experiments are constantly under way on efficient rates of withdrawal, analytical studies of the composition of the fluid and gases in the natural state in the reservoir, and other studies, all pointing towards the maximum recovery of crude oil with the minimum expenditure for power. The perfect example of complete recovery of the crude in a reservoir without addition of energy from outside sources will likely never be achieved. Nevertheless, to the extent that perfection is approached, we have lower-cost production.

Storage in Reservoir

Simultaneously with the development of practices which have been outlined was the growing realization that the crude could be stored in its natural reservoir and withdrawn as required far more economically than if produced at maximum rates, as previously had been done, and stored in steel tankage above ground. The fire hazards were practically eliminated; evaporation and expense of maintaining enormous steel reservoirs were reduced to the vanishing point. Previously, every new oil field was a race between the driller and the tank builder.

Contemporaneous with these developments were the legal procedures necessary to make reduced withdrawals effective and fairly applied. This general procedure brought in state governmental agencies and the practice has come to be referred to as "proration." Proration, today, signifies merely a restraint upon production, and it is far from being in its most desirable form. Theoretically, proration should be synonymous with efficient producing practice as applied to any pool. Largely, however, because the administration is in political bodies, it is subject to political exigencies and consequently is a compromise which leaves much to be desired. Proration was first conceived as an implement to balance "supply and demand." It is still so regarded by many people and without critical attention to efficient rate of production. The underlying purpose should be to permit each well to produce that proportion of oil that will best conserve reservoir energy and lead to the largest ultimate recovery from the pool. That, in my opinion, is true conservation. That affords petroleum engineers their widest field of usefulness and affords state regulatory officials their greatest opportunity to function for the benefit of the public interest. Some lawyers, ranking high in their profession and singularly experienced in this field, are of the opinion that this efficient rate of production can be imposed under the existing statutes at least of some oil states. The two specific instances in Oklahoma most nearly approaching proration on the true principle are Keokuk and South Burbank fields. Operators and state officials charged with conservation responsibilities should regard "proration" as the efficient producing rate. Proration should not be regarded as a method to secure some advantage by using political influence, neither should it be administered by "catch as catch can" methods or by juggling wholly uncomparable figures and arbitrarily writing up the allowable in one field by 500 barrels and writing down another field by 1000 barrels. If proration shall be based on the efficient rate of withdrawal, the matter of price is not a factor of importance, if at all, in the fair distribution of crude to be produced. At present, operators and officials charged with the administration of state conservation laws are conscious of the price element affecting allowables, and frequently there are questions of inequities and discrimination. Proper bases for proration as we advocate would eliminate these annoying, wasteful, and costly aspects now in the situation and achieve true conservation that is highly in the public interest. The industry, the state officials, and indirectly the consuming public must choose whether they wish true conservation of a valuable, exhaustible natural resource and efficient producing operations and reasonable prices for crude and products, or whether they want discriminatory tactics, extravagant and inefficient operations and higher prices.

Evidence of Efficiency

Even a very brief outline of the developments of oil producing practices indicates clearly that very substantial progress has been made. The financial condition of producing companies in relation to crude prices proves the point. The average posted prices for

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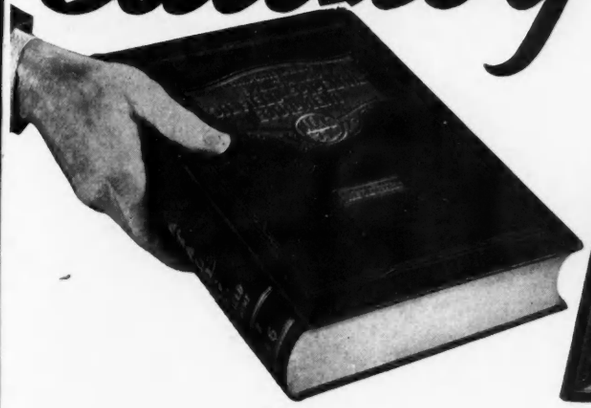

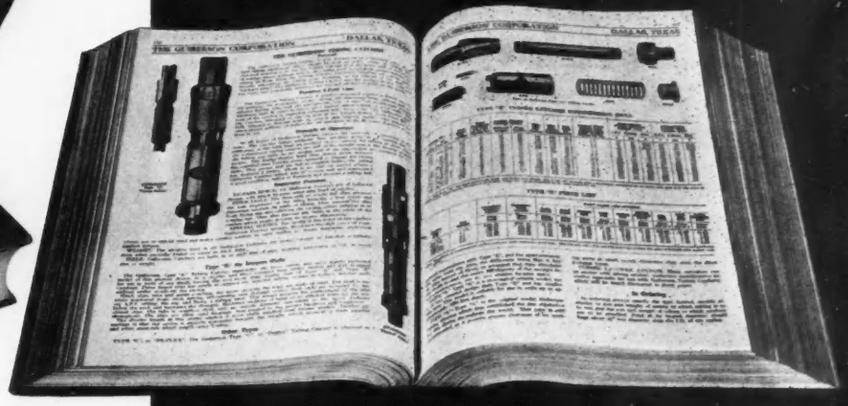

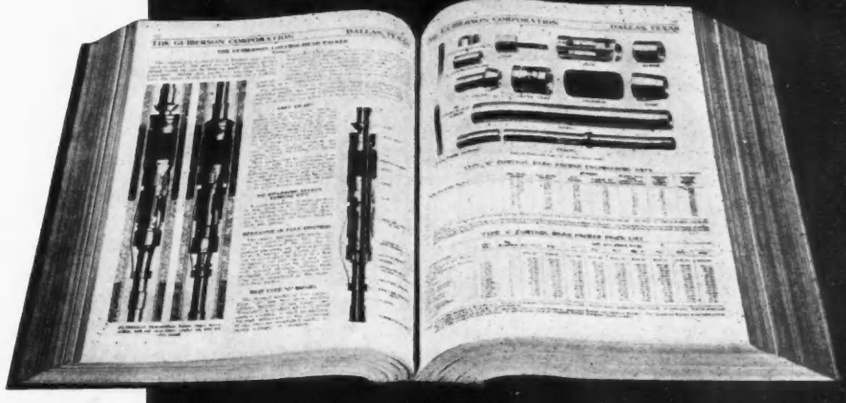

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1916-1920 incl.	$2.20	High 1920	$3.42	Low 1916	$1.26
1921-1925 incl.	1.68	High 1925	1.89	Low 1923	1.55
1926-1930 incl.	1.48	High 1926	2.13	Low 1930	1.23
1931-1935 incl.	0.83	High 1934-5	1.00	Low 1931	0.63

In 1927, the earnings of 6 representative companies depending substantially upon crude production aggregated $62,000.000; the earnings of the same 6 companies in 1935 were $59,600,000, approximately. In 1927, the price of 36° gravity crude averaged for the year $1.30, whereas the price of the same crude in 1935 was $1 per barrel. The earnings of these representative companies were only 4 percent less in 1935 than in 1927, while the average crude price was 30 percent higher in 1927 than in 1935. We believe that this is a fair representation. Producing companies were on a profitable basis during 1935, when a price of $1 per barrel prevailed for 36° gravity crude. A few years ago, producing companies could not have survived on a price of crude as low as $1 per barrel. The fact that a profit is possible today is entirely due to the greater efficiency and lower costs of production. Further improvements in the profit margin will not be realized unless a higher crude price prevails or unless greater efficiency is secured in producing practice. A large part of the benefits derived from efficient operations has been passed on to the public in the form of lower prices for gasoline and other products. This fact definitely proves, in our opinion, that the public interest has been considered and has permitted wider enjoyment of the benefits to be derived from the use of petroleum products. It is our opinion that a price very much or any higher than the present crude price not only cannot be anticipated by any logical analyses, but would be detrimental to the business from a long-range viewpoint. We believe that the margin of profit to the producer can be materially improved by wider adoption of advanced producing practices. Such a policy generally adopted by the oil industry will not necessitate increasing prices of the products of this industry to the public and should create a wider use and a consistently increasing volume that cannot otherwise be achieved. Producers demanding higher crude prices must admit inefficient operations. Also, higher prices place a premium on indolence and carelessness.

There are a few striking examples that might be cited as to the manner in which the petroleum industry can save very substantial amounts. Seeking a larger income from higher prices of crude and products is simply taking the easiest route for profit in the industry. The same profit can be achieved by acceptance of proven engineering principles and the application of proven practices. Let us look at the cost of development of a field on a wider spacing pattern. The Lucien field, in Noble County, Oklahoma, furnishes a good illustration. This pool was discovered September 29, 1932. It was contemplated to be developed on a pattern of one well to 40 acres. This has not been fully attained, and the development at present averages one well to 38 acres. The average cost for drilling and completing a well in this field is approximately $57,000, and the average total depth is about 5200 feet. To May 1, 1936, there has been recovered from this field, 9,172,591 barrels of oil. It is estimated that, as of May 1, 1936, this field shows an operating profit of practically $4,000,000. Using the same basic figures for estimation, if this field had been developed on a 10-acre spacing program, there would still be an unreturned investment covering development and operating costs exceeding $9,000,000. In other words, this field paid out development in about 3 years, whereas if it had been developed on 10-acre spacing, there would still remain a very heavy investment, which it is questionable would ever be paid out.

It is not proposed that 40-acre spacing, or any other spacing pattern, should be the universal rule. We propose, however, that each field should be developed on the pattern that is best adapted to the conditions and characteristics of that pool. The ideal condition might be conceivably, an irregular spacing pattern, but such a plan is most difficult to put into effect, if not impossible, because of property ownerships prevailing in most likely territory in the United States. There are many arguments advanced against wider spacing, and probably some of these are sincerely presented; however, it is difficult to understand the position taken by some companies and some individuals. Probably what really accounts for the opposition to wider spacing is yielding of conviction on the part of the engineers or a lack of understanding and vision on the part of engineers and executives. It is an expression of a philosophy of a temporary advantage without regard for the long-range view. Often, too, lawyers lacking in progressiveness and with antique notions of the law are obstacles.

We agree that a pool, where the depth of the wells might be 500 feet, may not economically justify 40-acre spacing. Perhaps in such a pool, the wells should be spaced one to 5 acres, or some other high degree of density. The thickness of the producing formation, the degree of porosity and permeability, the reservoir pressure, the amount of free and dissolved gases are all factors that should be considered in determining the density of wells in any field. We challenge anyone, however, to refute the fact that more money will be made by all parties interested in the production of wells having a depth of 6000 feet and below (within the usual ranges of characteristics) if the wells are spaced more widely than 1 to 10 acres, than if the field is developed on a pattern of one well to 10 acres or less. Economic spacing of wells has been defined clearly as: "That unless an added well seems likely to yield sufficient additional net income to permit a fair margin of profit, its drilling must be considered uneconomic."[1] It has been stated authoritatively and not refuted that close spacing of wells is often detrimental to ultimate yield because close spacing leads to and harmonizes with inefficient and improper use of reservoir energy.[2]

Conditions vary in each pool and selectivity of producing practice must be applied the same as proper selection of a pattern for deevlopment. In pools where there is a fairly active water drive, a rate of withdrawal can be ascertained that will be highly efficient. If the withdrawal is at such a rate that the reservoir pressure is approximately maintained, it is possible that little, if any, outside power will be required to produce all of the recoverable oil, and large investments, consequently saved. While not accurately familiar with the East Texas field, it is believed that the consensus of opinion of engineers familiar with this operation is that the rate of withdrawal in this field should not be increased above

[1] "Economic Spacing of Oil Wells," by M. G. Cheney, Bulletin of the American Association of Petroleum Geologists, Volume 19, Number 6, June, 1935.

[2] John R. Suman, "The Well Spacing Problem: Low Well Density Increases Ultimate Recovery." Oil Weekly, May 28, 1934.

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what it is at present, which is 450,000 barrels per day approximately. It is the opinion, I believe, that any higher rate will permit the water drive to lag, with the consequent rapid decline in pressures and the necessity to resort to artificial lift at an early date. There are about 20,000 wells in East Texas and assuming a figure of $5,000 per well for artificial lifting equipment, we reach a possible total investment of $100,000,000 for lift equipment. Interest on such an investment, at 4 percent per annum, is $4,000,000 per year, which the operators in that field are saving by adapting the rate of withdrawal to an effective water drive. Assuming a nominal figure of 10 cents per barrel for increased operating and maintenance expense for pumping wells, we obtain an estimated $16,000,000 per year as savings in East Texas by maintaining a rate of withdrawal commensurate with the pressure maintained by the natural water drive. The total saving is $20,000,000 per year, or roughly, $1000 additional profit per well, per year.

In fields that have little or no water drive, it is necessary to conserve the gas energy to the maximum degree. It has been determined that there are fields in Oklahoma which produce crude having a gravity of 40° at the surface, that the gravity in the reservoir is 62°. The higher gravity fluid in the reservoir flows more freely to the drill holes and if the production can be so regulated that the gas will not be drawn out of solution, the probabilities are that greater recovery will be obtained than if the reverse is the case. In many instances, it will be necessary to inject gas into the reservoirs under pressure, in order to maintain sufficient reservoir pressure that a large part, if not all, of the crude will be produced without other artificial lifting means. It is in such fields without water drive and with either free gas areas or large percentage of gases in solution that are ejected readily, that we have one of the most serious problems affecting the industry today. Proper producing practices, under these conditions, are in direct conflict with the established law of capture. It is highly essential that some means be found to modify the interpretations of the law of capture in jurisprudence. Compulsory unitization of all vested interest in such a pool is a very decided step towards true conservation of a natural resource. The engineers in the oil industry must take up this problem and work out a solution. Probably the best method to develop an oil field that is lacking in an active water drive is to work out a spacing pattern commensurate with the depth of the wells and other characteristics, and watch the decline in bottom-hole pressures during the early producing life of the pool. The decline in pressure drop should be retarded at some point which can be readily ascertained, and when such a point has been reached, gas should be injected into the reservoir to maintain the predetermined pressure. The economics of this procedure are that a part of the money saved from drilling is expended for plant and line facilities for gas injection, as a result of which, total investment in the field is very substantially less than under previous practice and the recovery of oil is as high or higher than under the old methods.

Engineers

The important part that the engineer plays in advanced practices applied to the recovery of oil should be perfectly obvious. The trouble with the engineering profession is that they fail to emphatically insist upon their convictions being applied. The profession of production engineers must be raised to a much higher ethical standard than heretofore. Occasionally, one hears of a lawyer who will give advice and opinions along the lines that he knows his client desires. These lawyers, however, are not very numerous and their rating is not particularly high in the ranks of their profession. Engineers should adopt a similar point of view, and should insist upon methods and practices being applied which they know, in the long run, will bring more profit to their employers. Engineers in the petroleum business need to develop that characteristic called "courage," and avoid mental dishonesty. There is too much an attitude on the part of engineers and executives to put their jobs above their responsibilities. They fail to impress persistently their superiors with the facts and true situations and results. The industry needs strong men who assert and advocate their convictions regardless of personal consequences. In the end, the cowardly man in any capacity, who consistently retires to a safe position, does no good for himself or his company.

There simply is no question but that oil fields, in which unnecessary wells are avoided and where intelligent effort is applied so as to maintain pressure and produce all of the oil economically recoverable without resorting to expensive old-style pumping, will be immensely more profitable to the operators and will return as much or more to the royalty owners than as operators were conducted even 10 years ago. This additional profit to the operators and equal, if not better, return to the royalty owners can be achieved without any increase in crude prices and consequently, without any restriction on volume of the products sold by this industry to the public. One of the greatest problems confronting the rank and file of the industry today is to overcome the inertia of executives, proration officials, royalty owners, and stockholders with respect to universal adoption of proven scientific principles and practices. It is almost unbelievable that many companies with complete and competent staffs of technical advisers consistently and arbitrarily oppose application of these practices which can only rebound to their benefit. It seems to be an insuperable task to attempt the education of stockholders in all producing companies, but it does seem possible to conduct a program of education within the ranks of the industry. It is up to the engineers and technical people, working with operators and producers, to fight for the complete adoption of wider spacing and pressure maintenance. There can be no question as to the ultimate adoption of these practices, but the time element in relation to prosperity of the oil business is highly important. It appears to be a task of the technical people in the companies to insist upon the use of advanced and proven methods, not only for the preservation of professional ethics and prestige, but even in the preservation of their jobs.

There is some thought occasionally that engineers will supplant all of the practical operators and that wider adoption of principles being advocated will result in loss of employment to many men. Such is decidedly not the case. Under modern procedures, many more oil fields have to be produced currently so that, in the aggregate, there are as many wells, or more, than under the old methods, and fully as much, if not more, employment of labor necessary. It takes an intelligent practical man to apply and attain the best results as devised by the technical people. It is

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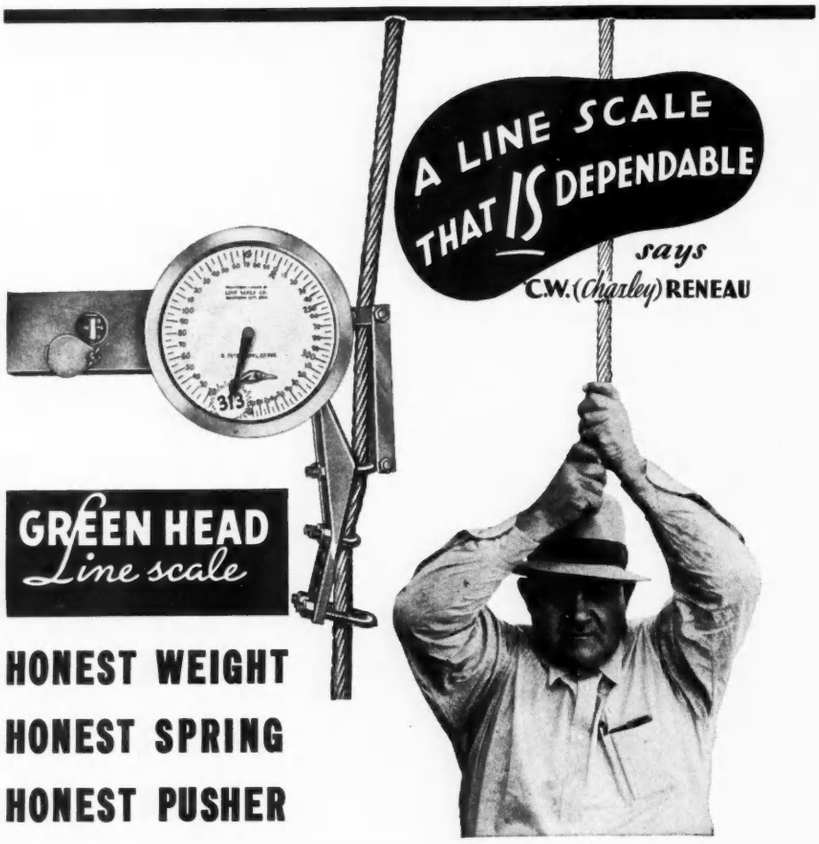
refreshing to observe that most of the practical men in the business have appreciated this condition, and are working hand in hand with the technical people.

One also hears a great deal at present about reserves. There is fear in some quarters that reserves are too high and that too many oil fields are being found. We have always had crude reserves, although in past years, we did not estimate what these underground reserves were because it was thought that aboveground reserves in steel storage were the only factor which was statistically and economically important. Consumption has increased, and more reserves are required for this higher rate of use of petroleum products than in past years on a lower rate of consumption. Adjusting present reserves for the higher consumptive rate, it is only the relative increase in amount of reserves over any interval that represents any cost to the industry. This cost is relatively unimportant in the aggregate of features that make up the total cost of a barrel of crude. It has been estimated by competent accountants that carrying reserves aboveground in steel storage costs from 5 cents to 15 cents per barrel per year. It has likewise been estimated that cost of carrying augmented underground reserves is of the order of 2 cents per barrel per year. Even when we add the increased cost for finding efforts, drilling, acquisition and carrying leases, and overhead, we still get a total cost of producing oil that is easily 15 or 20 cents per barrel less than under the old methods when every well, regardless of depth or characteristics of the producing horizon, was drilled on a 10-acre tract or less, and the whole effort was to get the well on the pump as quickly as possible. This disparity in cost may amount to as much as 50 cents per barrel. Each company which is following these principles and practices is forced to assume unnecessary cost because of the indifference or refusal on the part of other operators to apply the same improved methods. If wider spacing, unitization, and pressure maintenance were universally adopted in the oil industry, it is a perfectly safe and conservative prediction that the producers could anticipate a profit of from 10 to 20 cents per barrel above what can be realized today by any producer with the limited application of these improved methods. Also, by adoption of these principles, we get a stabilized situation that cannot be secured possibly by the widely fluctuating production trends, costs, and sales prices that formerly prevailed. One could adduce as an argument against the adoption of these practices that individual wells might be prorated to such a low allowable per well that the profit would be eliminated. Going so far as the imagination can travel, it is scarcely conceivable that such a situation could arise, but, assuming that it might, it is believed that such a condition would operate the economic law of "supply and demand" to the extent that prices would decline, not abruptly, but to some extent which would retard development and in a relatively short time, the lack of finding new oil or additional oil in developed fields would result in an increased allowable for existing producing wells. Even in such an extreme case, we would have a far greater degree of stabilization than has ever been known in the history under practices as followed.

Grateful acknowledgment is given for helpful criticism and suggestions in the preparation of this paper to J. A. Veasey, F. W. Floyd and L. F. McCollum.



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MARKETS STEADY AS BETTER PRODUCTION CONTROL IMPENDS

THE oil industry's markets took a turn for the better after going through the crisis of the middle of last week caused by overproduction of crude. Prices of refined products grew somewhat steadier, and the crude market strengthened when it became assured that crude production would be rigidly controlled during June in member states of the Interstate Compact, and when a federal court injunction restrained further interstate movement of a large batch of Rodessa crude that had been moved into Texas. Meanwhile, the output at Rodessa was reduced somewhat when output was cut back on a property that had enjoyed the special, high allowables.

Early in the week there had been grave fears that gasoline prices might break badly and that crude prices might be cut in the Mid-Continent, in view of the high crude production nationally and the threatened proration breakdown at Rodessa. When these dire possibilities became less threatening, however, the markets soon became appreciably steadier.

Crude Allowables Lower

Following the example set by the Texas Railroad Commission the previous week, in ordering lower Texas allowables for the last 10 days of May and during June, conservation officials of several other important oil producing states took steps last week to reduce production in their states by lowering allowables. This movement was facilitated by the Interstate Oil Compact Commission. Kansas officials indicated that state's allowable in June would be held to the same figure as in May, and therefore would be less than the Bureau of Mines recommendation.

Late in the week the Oklahoma Corporation Commission was considering the promulgation of a June allowable less than that for May and under the federal allocation for June. The Oklahoma allocation committee had recommended that the state allowable be cut to 524,875 barrels daily for June from 538,300-barrels daily allowable in May, although the Bureau of Mines prescribed a June allocation of 552,500 barrels daily.

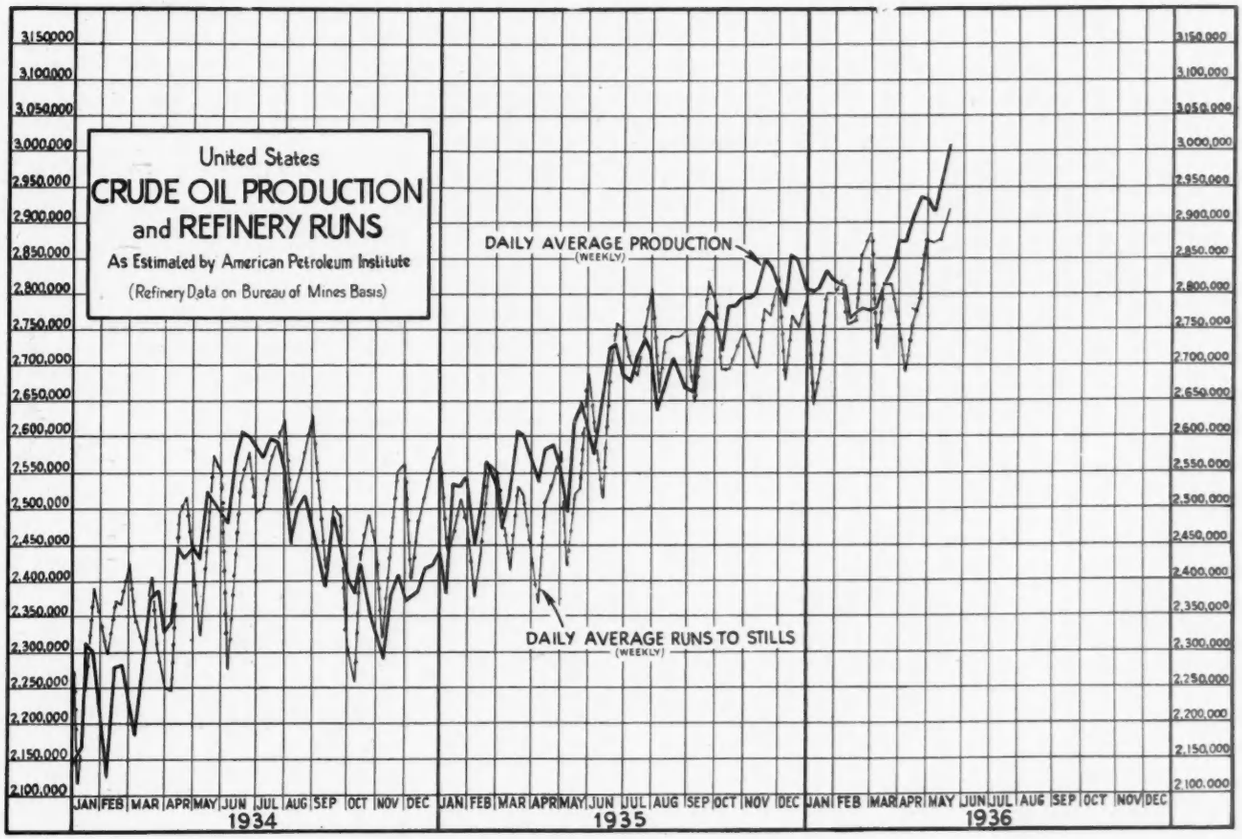
New Mexico cooperated in the movement, when its conservation commission agreed to prescribe June allowables five percent under the 75,000 barrels daily permitted in May.

The total Texas allowable was lowered about 50,000 barrels daily through the order that the railroad commission placed in effect May 20. The new allowable conformed closely with the federal allocation for May.

Rodessa Threat Diminishes

Rodessa became a somewhat less menacing market threat in consequence of the federal court injunction. Temporarily, at least, oil produced under the special order was denied access to interstate commerce, and that which had been moved into Texas was impounded pending further hearing of the case. It appears, therefore, that for some time Rodessa output is likely to be held within reasonable limits.

However, much depends on the future course of the Louisiana conservation authorities and regular allowables that they may prescribe for June and succeeding months, as well as on the course they may take with regard to the special order for the Rodessa field lease or possible future or-



ders of that nature. It is quite evident that the Rodessa field and Louisiana proration in general continue as distinctly disturbing factors in the market picture.

Gasoline Buying Resumed

In the opening half of last week there was some further sagging of the gasoline tank car markets in the Mid-Continent, with the prices losing another eighth cent in East Texas and in the Chicago territory. Demand was somewhat better, due to generally favorable motoring weather, but buyers were hesitant on account of the threatened general break in the markets. The hesitancy began to lift, however, as the latter part of the week brought the more favorable developments, and there seemed to be a possibility that prices might soon show some improvement.

The kerosene tank car markets did not register any important change durign the week. Although demand was slow in some portions of the Mid-Continent, it was slightly improved in other sections, with several refiners seeking additional supplies. However, the supplies were adequate for requirements, and prices remained unchanged. although they were steadier.

Prices in Mid-Continent

In the East Texas refining district fully tendered third grade U. S. Motor gasoline was available late last week at some plants for as little as 4⅝ cents a gallon, although efforts were being made to hold the top price to the 4¾ cents that had prevailed for about a week. In the meantime, as usual, truck movements of third grade gasoline from the area were going at substantially lower prices than those available on the fully tenderable material.

In the Chicago market, also, the third grade, 62 octane and below, lost one-eighth cent in the first half of the week, as prices began to range between 4⅝ and 5 cents. The 63 to 67 octane grade was unchanged at 5⅛ to 5¾ cents, and the 68-70 octane remained at 5⅝ to 6 cents.

At Oklahoma refineries the top price on third grade U. S. Motor gasoline was off one-eighth cent at 5⅛ cents, with the range going downward to 4⅞ cents. The 63-67 octane gasoline was unchanged at 5½ to 5¾ cents, and the 68 to 70 octane was priced the same as a week previously at 6 to 6¼ cents.

Kerosene of the 41-43 water white grade continued as in the previous week to be quoted at 4 to 4¼ cents a gallon in both the Chicago and the Oklahoma markets, and at 4⅜ cents at East Texas refineries. The 42-44 water white grade also was unchanged in price, at 4¼ to 4½ cents in the Chicago and Oklahoma territories.

East Texas Tank Car Shipments

Week Ending May 17, 1936

PRODUCTS	No. Cars	Estimated Gallons
Gasoline	673	5,454,920
Fuel Oil	241	2,248,446
Casinghead Gasoline	235	1,953,593
Distillate	65	526,585
Gas Oil	33	267,260
Kerosene	20	158,837
Residuum	17	137,942
Naphtha	3	24,357
Total	1,288	10,771,940
Total Previous Week	1,139	9,707,945
Interstate	543	.....
Coastwise	381	.....
Intrastate	364	.....
Total	1,288	.....

SEEK REDUCTION

Associations take notice of excesses

Tulsa.—Concerted effort to gain reduction of the national oil output took form here May 22 with the passage of resolutions to that effect by the Independent Petroleum Association of America and the National Stripper Well Association.

The resolutions were similar in nature. Each called attention to the fact that daily production is in excess of current requirements as estimated by the United States Bureau of Mines and asked the Interstate Oil Compact, the governors of the oil producing states and the officials of regulatory bodies of these states to take steps to reduce output to within the recommended totals.

In particular officials of Louisiana were urged to bring about curtailment at Rodessa.

Semi-official notice was taken of conditions this week. The allocations committee of Okahoma decided to recommend a reduction of 13,425 barrels for June. Kansas officials have indicated that production there will be held to the May allowable of 150,100 barrels daily, although the figure recommended by the federal bureau will be 3000 barrels in excess. Information here is that New Mexico will bring its daily output down five percent.

Excessive production for the nation occupied much of the time of committees of the two organizations which passed the resolutions.

The National Stripper Well Association devoted its annual meeting to committee reports and a discussion of problems that effect production from old wells.

Officials elected by the association are William Bell, Robinson, Illinois, president; T. S. Steele, Robinson, Illinois, vice president; H. B. Fell, Tulsa, executive vice president; P. B. Flynn, Wichita Falls, secretary-treasurer.

Summary of Wells Completed in the United States Week Ending May 23, 1936

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total Completions 1936	Total Completions this date 1935
Alabama	....	....	....	....	.....	2	3
Arkansas	3	....	....	3	.....	37	74
California	17	17	....	....	8,221	353	310
Colorado	....	....	....	....	.....	5	5
Illinois	....	....	....	....	.....	4	8
Indiana	3	....	2	1	.....	90	78
Kansas	39	25	....	14	20,599	592	565
Kentucky	13	7	....	6	580	105	67
Louisiana	24	17	3	4	22,405	411	296
Michigan	12	1	6	5	450	274	158
Mississippi	....	....	....	....	.....	2	10
Montana	2	1	....	1	105	42	28
New Mexico	19	17	....	2	20,007	202	107
New York	....	....	....	....	.....	....	....
Ohio	26	7	11	8	219	758	558
Oklahoma	48	39	1	8	50,595	1,044	939
Pennsylvania	....	....	....	....	.....	....	62
Texas	282	216	8	58	262,482	4,796	4,677
Utah	....	....	....	....	.....	....	....
West Virginia	11	3	6	2	29	273	197
Wyoming	1	1	....	....	354	17	18
Total this week	500	351	37	112	386,046	9,006	8,141
Total last week	519	350	44	125	385,261	....	....
Total this year	9,006	5,985	902	2,119	8,505,478	....	....

ANTON KENNETH SANDERS was instantly killed May 19 when he fell 70 feet from the top of a derrick which was being dismantled in Taft field, San Patricio County, Texas. Sanders was 52 years of age and resided in Corpus Christi.

Comparison of Permits Granted For New Wells

STATE	Week Ending May 23	Total this Mo.	Total this Year	Total this Date Last Year	1935 Year Total
Arkansas	7	14	41	57	70
California	17	111	366	364	925
Louisiana	59	117	502	338	846
Kansas	36	161	720	547	1,204
Michigan	18	72	258	194	749
Oklahoma	46	262	286	878	2,311
Texas	439	1,376	5,551	5,130	10,800
Total	622	2,078	8,629	7,508	16,964

PRODUCTION HIGH

Only slight decline from previous week indicated

UNITED STATES crude oil production declined a little last week, but still was close to the all-time peak established in the previous week. The average output for the new week ended May 23, was 2,992,350 barrels daily, a decrease of 1075 barrels from the daily average the week before. These figures are based on THE OIL WEEKLY's regular compilation of estimates. The American Petroleum Institute also indicated an all-time peak of production for week before last, estimating the national output in that week, ended May 16, at 3,008,050 barrels daily.

The nation's crude production remained at an unusually high level last week despite minor decreases in Texas, Oklahoma, Kansas, and California; for those declines were largely offset by a 12,000-barrel increase in Louisiana, which was accounted for almost wholly by the Rodessa field. Each of these five leading producing states still was producing more than recommended by the Bureau of Mines, and the national output consequently was excessive to the extent of 166,050 barrels daily, the country's total demand for May having been estimated at 2,826,300 barrels daily.

Texas Output Lower

Texas production last week came down nearly 8000 barrels to 1,162,300 barrels daily, in consequence of the lower allowables ordered by the Texas Railroad Commission effective May 20. Only the latter part of the week was affected by the new quotas, and therefore a further decrease is in prospect for the state this week. The state's output last week still was about 30,000 barrels per day higher than the Bureau of Mines recommendation.

Oklahoma last week averaged 558,675 barrels daily, or about 2000 barrels a day less than in the previous week, and was approximately 20,000 barrels above the daily average recommended by the federal government.

Kansas production last week, averaging 157,125 barrels per day, was more than 3000 barrels under the previous week's level, but still was about 7000 barrels above the Bureau of Mines recommendation.

California showed a 5500-barrel decrease in averaging last week 572,500 barrels daily. That was 28,500 barrels a day more than suggested by the federal department.

Louisiana Rises Further

Louisiana output rose further, with certain wells in the Rodessa field still producing above the regular allowables. The state last week averaged 237,500 barrels daily, or about 12,000 barrels a day more than in the previous week. The North Louisiana district was up to 92,700 barrels a day from 80,250 barrels daily the week before, with Rodessa in each instance accounting for all but about 20,000 barrels daily of the district total. At the new rate of 237,500 barrels daily, Louisiana was 67,000 barrels above the Bureau of Mines recommendation.

United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	BARRELS DAILY FOR WEEK ENDING May 23	May 16
TEXAS—		
Texas Panhandle	62,400	62,200
North Texas	59,800	59,600
West Central Texas	25,100	25,000
West Texas	182,600	185,200
East Central Texas	52,600	53,100
*East Texas Field	448,100	451,100
†South Texas	80,400	81,300
†Texas Gulf Coast	251,300	252,400
*Total Texas	1,162,300	1,169,900
OKLAHOMA—		
Oklahoma City	141,825	155,400
Seminole Area	144,125	146,850
Tatums	3,525	3,550
Lucien	13,750	13,650
Fitts	56,225	43,025
Edmond	12,500	12,625
Others	186,525	185,425
Total Oklahoma	558,675	560,525
KANSAS—		
Ritz-Canton	6,575	6,700
Voshell	3,000	3,175
Nikkel-Hollow	4,025	4,175
Sedgwick	5,600	5,700
Burrton-Haury	13,100	13,400
Lorraine	7,725	7,250
Oxford	6,600	7,500
Others	110,500	112,600
Total Kansas	157,125	160,500
LOUISIANA—		
North Louisiana	92,700	80,250
Louisiana Gulf Coast	144,800	145,600
Total Louisiana	237,500	225,850
ARKANSAS	30,050	30,050
CALIFORNIA—		
Long Beach	66,800	68,000
Santa Fe Springs	42,000	44,200
Huntington Beach	36,000	37,500
Dominguez	27,800	25,400
Inglewood	11,400	13,200
Ventura Avenue	33,800	34,000
Seal Beach	9,200	9,700
Midway-Sunset	56,700	56,600
Elwood	12,900	13,000
Kettleman Hills	80,000	79,600
Mountain View	27,400	27,600
Playa del Rey	14,200	13,700
Others	154,300	155,500
Total California	572,500	578,000
MOUNTAIN STATES—		
Wyoming	38,600	38,200
Montana	14,700	13,300
Colorado	4,600	4,600
Total Rocky Mountain States	57,900	56,100
NEW MEXICO	74,800	72,400
EASTERN STATES	106,800	105,500
MICHIGAN	34,700	34,600
*Total United States	2,992,350	2,993,425
*Surreptitiously produced oil in East Texas, not included in above figures, estimated at	12,000	15,000
Grand Total, including surreptitious production	3,004,350	3,008,425

† Coastal Section of South Texas is included with Texas Gulf Coast.

Crude Runs to Stills, Stocks of Finished and Unfinished Gasoline and Gas and Fuel Oil, and Cracked Gasoline Production, Week Ended May 16, 1936

(Figures in thousands of barrels of 42 gallons as reported to American Petroleum Institute)

DISTRICT	Daily Refining Capacity			Crude Runs to Stills		Stocks of Finished and Unfinished Gasoline				Stocks of Gas and Fuel Oil			Daily Charging Capacity of Cracking Units			Cracked Gasoline Production
		Reporting				Finished								Reporting		
	Potential Rate	Total	%	Daily Average	% Operated	At Refineries	Terms. Trans. Pipe Lines	Unfinished in Naphtha Distillates	Total Finished and Unfinished	Gas Oil & Distillate	Residual Fuel Oil	Total	Potential Rate	Total	%	Daily Average
East Coast	612	612	100.0	489	79.9	7,455	11,178	1,048	19,681	3,426	4,577	8,003	534	534	100.0	96
Appalachian	154	146	94.8	100	68.5	1,376	964	274	2,614	224	218	442	79	78	98.7	21
Ind., Ill., Ky	442	424	95.9	408	96.2	7,414	2,781	952	11,147	1,465	1,802	3,267	349	348	99.7	125
Okla., Kans., Mo	453	384	84.8	295	76.8	4,481	2,421	677	7,579	539	2,127	2,666	256	228	89.1	65
Inland Texas	330	160	48.5	108	67.5	1,167	103	240	1,510	283	1,412	1,695	148	105	70.9	26
Texas Gulf	680	658	96.8	598	90.9	5,993	310	1,919	8,222	3,298	3,299	6,597	399	393	78.5	155
Louisiana Gulf	169	163	96.4	116	71.2	1,015	482	240	1,737	958	968	1,926	77	74	96.1	19
North La.,—Ark.	80	72	90.0	51	70.8	227	86	112	425	47	342	389	46	44	95.7	9
Rocky Mountain	97	60	61.9	47	78.3	1,460	.....	102	1,562	125	605	730	46	39	84.8	14
California	852	789	92.6	528	66.9	9,606	2,493	1,046	13,145	.....	.....	71,134	280	280	100.0	67
Reported	.....	3,468	89.6	2,740	79.0	40,194	20,818	6,610	67,622	.....	.....	96,849	.....	2,123	95.9	597
Estimated Unreported	.....	401	....	180	....	2,728	1,807	333	4,868	.....	.....	2,271	.....	91	....	48
*Estimated Total U.S. May 16, 1936	3,869	3,869	....	2,920	....	42,922	22,625	6,943	72,490	.....	.....	99,120	2,214	2,214	....	645
*Estimated Total U.S. May 9, 1936	3,869	3,869	....	2,870	....	43,583	22,977	6,929	73,489	.....	.....	98,550	2,214	2,214	....	650
U.S.B.of M., May, 1935	.....	....	....	2,594	....	†34,725	†20,471	†6,287	†61,483	.....	.....	†100,177	.....	....	....	559

*Bureau of Mines basis currently estimated. †As of May 31, 1935.

The Changing Panorama

[*Continued from page 12*]

human nature for oil producers in other states to want to retaliate, and if federal control offers possibilities for whipping Louisiana into line, then the proposal for reviving federal control gets an attentive ear.

Bill Is Step Toward Oil Control

Although this session of Congress has not had the clamor of recent previous sessions over federal oil control, there is one measure in the bill that has potentialities for bringing ultimately a closer supervision of oil by the national government. It is the Lewis bill, passed by the Senate, and being pushed further, for changing the name of the Department of the Interior to "Department of Conservation." A strong advocate of the measure is Secretary Ickes, who under the proposed law would become Secretary of Conservation. In a national radio address, Mr. Ickes urged enactment of the Lewis bill, in furtherance of the far-flung conservation policy that he described as necessary for national self preservation. He obviously still favors federal regulation of oil production, and believes this bill would be a step in that direction. In the broadcast he stated that "at least a beginning" has been made, through the oil code and the Connally hot oil law, toward "stopping reckless overproduction and consequent waste of petroleum and its products."

In connection with possible future efforts to enact federal oil control legislation, there was a development last week that apparently was significant. The 6 to 3 decision of the Supreme Court May 18 invalidating the Guffy Coal Act indicates that federal control of oil production likely would be unconstitutional if based on the powers of Congress to regulate commerce. (It was on such powers that the important federal oil control bills of recent sessions were predicated.) There seems to be a possibility, however, that federal oil control might be valid if based on the national defense powers of Congress.

These conclusions are based on the fact the majority opinion in the coal case referred repeatedly to coal mining as production, and indicated that federal control of production cannot be justified under the powers given Congress in the Constitution to regulate commerce. As in the case of the NRA, the coal law was held unconstitutional because of federal invasion of state powers.

COMPANY DIVIDENDS

Various oil companies lately have furnished news of a financial nature. Humble Oil & Refining Company directors May 18 declared the regular 25 cent quarterly dividend payable July 1 to stockholders of record June1. The Royal Dutch Company announced May 20 a dividend of 10½ percent on the ordinary shares of stock. That was the largest payment since 1930, when a 17 percent dividend was disbursed, and compared with 7½ percent paid in 1934. Shell Transport and Trading Company, associated with the Royal Dutch, declared a dividend of 17½ percent for 1935, compared with 12½ percent for 1934. Continental Oil Company will pay a dividend of 25 cents a share July 31 to stockholders of record July 6.

WEST TEXAS LINE

Midland, Texas.—Atlantic Pipe Line Company is installing a 10-mile six-inch loop on its trunk line extending north from the Grand Falls district, Ward County, to boost the market outlet for the latter area from 16,000 to 25,000 barrels daily. The new unit will parallel a six-inch line that ties into an eight-inch carrier at a point near Pyote, and the latter terminates at the company's booster station and tank farm near Wink.

SUN ANNIVERSARY

Dallas, Texas.—Fiftieth anniversary of Sun Oil Company was commemorated at the annual picnic given employees May 20 at a local country club. About 75 veteran employees were brought in from distant areas to take part in the outing, which has been conducted for 17 consecutive years. The company always supplies an abundance of fried chicken with all the trimmings. J. Edgar Pew of Philadelphia, vice president in charge of production, was the honored guest and presided as the general field judge of the athletic contests.

CRUDE OIL PRICE QUOTATIONS

(Figures Represent Basic or Flat Prices—Revised to May 22, 1936)

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Oklahoma-Kansas	28—$0.94	2¢	40—$1.18	1- 9-36
N. and N.-C. Texas	28— .84	2¢	40— 1.08	1- 9-36
Texas Panhandle				
Gray County	34— .86	2¢	40— .98	1- 9-36
Carson-Hutchinson	34— .81	2¢	40— .93	1- 9-36
West Texas				
Ector, Pecos, W'kler Crane, Upton, Howard and Glasscock	29— .76	2¢	36— .90	1-14-36
West Central Texas	28— .84	2¢	40— 1.08	1- 9-36
East Central Texas	28— .91	2¢	40— 1.15	1- 9-36
East Texas	*1.15			1- 9-36
Talco	* .60			4-15-36
Texas Gulf Coast				
Anahuac-Dickinson	30— 1.04	2¢	40— 1.24	1- 9-36
Conroe	35— 1.24	2¢	40— 1.34	1- 9-36
Tomball	*1.30			1- 9-36
Cleveland	*1.00			1-11-34
†Goose Creek, Hull Liberty, Orange, Pierce Junction, Moss Bluff, Raccoon Bend, Sour Lake, Spindletop, Sugarland, West Columbia, Humble, Rabbs Ridge	Below 17— .88	2¢	34— 1.22	1- 9-36
South and S. W. Texas	Below			
Refugio (Light)	17— .88	2¢	34— 1.22	1- 9-36
Refugio (Heavy)	* .90			1- 9-36
Saxet	* .90			1- 9-36
Mirando	* .85			1- 9-36
Pettus	*1.25			1- 9-36
Salt Flat	* .97			1-14-36
Darst Creek	* .97			1-14-36
Port Lavaca	* .97			
Plymouth	* .90			12-17-35
Arkansas				
El Dorado (Light) and Rainbow	25— .78	2¢	40— 1.10	1-10-36
El Dorado East Field and Smackover	* .75			1-10-36

* All gravities—flat rate.
† Gulf Coast prices as posted by Humble Oil & Refining Company.

DISTRICT	Low Grav.	Dif.	High Grav.	Date
North Louisiana	25—$0.78	2¢	40—$1.10	1-10-36
Urania	* .97			1-10-36
South Louisiana	Below			
Lockport	19— .92	2¢	34— 1.22	1- 9-36
Iowa, Cameron Mds.	Below 19— .82	2¢	34— 1.12	1- 9-36
Rocky Mountain States				
Salt Creek	29— .94	2¢	40— 1.18	1-10-36
Elk Basin	*1.28			1- 9-36
Grass Creek (Light)	*1.28			1- 9-36
Grass Creek (Heavy)	* .58			1- 9-36
Big Muddy	*1.11			1- 9-36
Rock Creek	*1.12			1- 9-36
Sunburst	*1.25			1- 9-36
Lance Creek	* .90			1- 9-36
Osage	*1.08			
Cat Creek	*1.07			8-25-33
Cut Bank	*1.45			9-29-33
Pondera	*1.05			9-29-33
Hog Back, N. M.	*1.00			9- 8-33
Lea County, N. M.	* .75			9-29-33
Mid-West States				
Lima	*1.25			1-10-36
Illinois	*1.23			1- 9-36
Princeton	*1.23			1- 9-36
Western Kentucky	*1.23			1- 9-36
Pennsylvania				
Bradford	*2.45			1-13-36
Sw. Pa. Pipe Line	*2.17			1-13-36
Eureka Pipe Line	*2.12			1-13-36
Buckeye Pipe Line	*1.97			1-13-36
Corning Grade	*1.42			1-13-36
Michigan				
Central Michigan	*1.32			1-14-36
Muskegon	*.70-1.00			12-31-32
Canada				
Petrolia	*2.10			9- 9-33
Oil Springs	*2.17			9- 9-33

* All gravities—flat rate.
‡ Average price, all oil sales being to small refineries.

MAJOR PRICE CHANGES

	Penna. (Nat. Tr.)	Mid.-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-13
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
August 11, 1933	Up 10	.....	.....
August 24, 1933	.....	Up 10	.....
August 30, 1933	Up 15	.....	.....
September 6, 1933	Up 10	Up 10	Up 18
September 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25	.....	.....
January 4, 1935	Up 15	.....	.....
February 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
August 29, 1935	.....	.....	Cut °4
September 6, 1935	Up 5	.....	.....
October 29, 1935	Up 15	.....	.....
November 1, 1935	.....	.....	Up °28
November 18, 1935	Up 15	.....	.....
December 6, 1935	.....	.....	Up °4
January 9, 1936	.....	Up 10	.....
January 13, 1936	Up 15	.....	.....
February 26, 1936	.....	.....	Up '8

CRUDE PRODUCTION TAXES

Oklahoma—Five percent of gross value less royalty interest.

Texas—Two cents or 2 percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Two percent of gross value at well and ¾ of 1c per barrel.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

* All gravities—flat rate.
° Signal Hill 26 gravity.
' Seal Beach 26 gravity.

CALIFORNIA OIL PRICES

(All gravities above those quoted take highest prices of that field. Effective February 26, 1936)

Gravity	Signal Hill	Seal Beach Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canyon	Athens Rosecrans	Elwood Terrace	Torrance	Richfield	Whittier East Coyote La Habra	Montebello	West Coyote Hills	Santa Fe Springs	New Hall McKittrick Kern River Round Mountain	Mountain View	Midway-Sunset Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$.80	$.79	$.78	$.79	$.80	$.76	....	....	$.80	$.76	$.76	$.77	$.78	.....	$.70	....	$.70	$.70	$.70	....
15-15.9	.80	.79	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
16-16.9	.80	.79	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
17-17.9	.80	.79	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
18-18.9	.80	.79	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
19-19.9	.82	.79	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	.....	.70	$.70	.74	.74	.71	$.70
20-20.9	.85	.79	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	.....	.....	.70	.78	.78	.72	.70
21-21.9	.88	.79	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	.78	.....	.73	.82	.82	.74	.70
22-22.9	.92	.82	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	.....	.77	.87	.86	.78	.73
23-23.9	.95	.86	.96	.99	1.02	.96	$.84	....	.96	.88	.93	.82	.92	.78	.....	.80	.92	.90	.82	.76
24-24.9	.99	.91	1.00	1.02	1.06	.99	.88	....	.99	.91	.96	.85	.96	.82	.....	.84	.97	.94	.85	.79
25-25.9	1.03	.95	1.08	1.05	1.11	1.03	.93	....	1.02	.95	....	.89	.99	.86	.....	.88	1.01	.98	.90	.83
26-26.9	1.06	1.00	1.07	1.09	1.16	1.06	.98	....	1.05	.98	....	.92	1.03	.90	.....	.91	1.06	1.02	....	....
27-27.9	1.10	1.05	1.11	1.12	....	1.10	1.03	....	....	1.02	....	.96	1.06	.95	.....	.95	1.10	1.06	....	....
28-28.9	1.14	1.10	1.14	1.15	....	1.14	1.07	....	....	1.06	....	.99	1.10	.99	.....	.99	1.15	1.10	....	....
29-29.9	1.17	1.15	1.18	1.18	F.O.B.	1.17	1.12	....	....	1.09	....	1.03	1.14	1.08	.....	1.02	1.20	1.14	....	....
30-30.9	1.21	1.19	1.22	1.21	Pipe	1.21	1.17	F.O.B.	....	....	....	1.07	1.17	1.08	.....	1.06	1.25	1.18	....	....
31-31.9	....	....	....	1.24	Line	1.24	1.22	Ship	Kettleman Hills			1.11	1.21	1.12	.....	1.09	1.29	....	....	....
32-32.9	....	....	....	1.27	....	1.27	1.27					1.14	1.25	1.16	.....	1.13	1.34	....	....	....
33-33.9	....	....	....	....	....	....	1.32	$1.28		1.19		1.18	1.28	1.20	.....	1.17	1.38	....	....	....
34-34.9	....	....	....	....	....	....	1.37	1.32	....	1.22	....	1.22	1.32	1.25	.....	1.20	.....	....	....	....
35-35.9	....	....	....	....	....	....	1.42	1.35	....	1.27	....	1.25	....	1.20	.....	....	.....	....	....	....
36-36.9	....	....	....	....	....	....	1.46	1.39	....	1.31	....	1.29	....	1.33	.....	....	.....	....	....	....
37-37.9	....	....	....	....	....	....	1.51	1.43	....	1.35	....	1.32	....	1.37	.....	....	.....	....	....	....
38-38.9	....	....	....	....	....	....	1.56	....	....	1.39	....	1.36	....	1.42	.....	....	.....	....	....	....
39-39.9	....	....	....	....	....	....	1.61	....	....	1.43	....	1.40	....	.....	.....	....	.....	....	....	....
40-40.9	....	....	....	....	....	....	1.66	....	....	....	....	1.43	....	.....	.....	....	.....	....	....	....

WORLD DEVELOPMENTS and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

ITALIAN FIRMS

Are reported building three oil refineries

Considerable refinery building is planned or underway in Italy by government organizations or those closely associated with the Italian government, according to a communication from E. Hume of Rome.

Azienda Nazionale Idrogenazione Carburanti (National Motor Fuel Hydrogenation Company) will build a plant at Leghorn, Italy, with an annual capacity of 150,000 tons of gasoline. In addition to the Leghorn plant, the same organization contemplates erection of an hydrogenation process plant at Bari to handle Albanian crude oil.

Another plant will be erected, according to current reports in Italy, in the Valdarno district of Tuscany for the hydrogenation of lignite to obtain gasoline and other light oils. It is not known whether A.N.I.C. or the government proper will operate the plant, but it is understood same will be built as a national defense measure to be operated only under cases of national emergency.

POLAND ACTIVE

Increased Stanislawow drilling is reported

Performance of a few wells in Stanislawow district of Poland has resulted in inauguration of a drilling campaign and a doubling of production in that district, according to a communication received from Warsaw, May 21.

Bitkow and Pasciezna fields are attracting considerable foreign capital, it is reported, and premiums are being paid for crude contracts in those places.

One of the wells responsible for a revival of activity in Stanislawow district is Malapolska Oil Company's Chrobry 2, production of which jumped to five tank cars per day when gas sand was encountered while drilling deeper. Production of Chrobry 2 from the upper sand had declined sufficiently to warrant the attempt for deeper production.

As a result of performance of Chrobry 2, Malapolska Oil Company is drilling four additional tests in the vicinity.

Pioneer Oil Company, S.A., is drilling four wells at Niebelow in Kalusz district, and Galicia Oil Company, S.A., is going ahead with development of a lease recently obtained in Perehinsk field. In addition, the latter organization plans to do exploratory drilling soon at Maniawa, near Solotwiny, where geological investigations are said to have justified drilling.

Petromex Denies

KNOWLEDGE OF CONCESSION GRANT TO JAPS IN MEXICO

Queried by THE OIL WEEKLY concerning rumors in well informed circles that 200,000 hectares, approximately 494,000 acres, in attractive concessions had been awarded Japanese-controlled interests in Mexico for exploration purposes, a telegram from Petroleos de Mexico, S. A., May 22 stated:

"We have not known or heard anything about concessions being granted to Japanese-controlled company."

The grant, according to the unconfirmed rumor, involved concessions in the states of Tamaulipas, Veracruz, Navarit, Tabasco, and Chiapas, Laguna Corporation being the named recipient of the concessions. Terms of the concession were said to involve turning over the cream of those concessions to the Japanese interests after exploratory requirements had been met over a period of three years. Laguna Corporation, according to well informed sources, is actively operating on the Isthmus of Tehauntepec. Other foreign interests in Mexico, believing in the probability of the truth of the rumor, were apprehensive lest this series of grants might be the forerunner of additional concession privileges in the future.

One source advised that the present secretary of foreign relations of Mexico had spent many years in Japan as Mexico's minister, that he spoke the Japanese language fluently and was known to be kindly disposed toward the people of Nippon. The correspondent did not know whether the secretary's influence had been used on behalf of the Japanese, but he did state "Petromex", which is the Mexican government controlled, integrated oil company, had more or less farmed out certain properties to Laguna Corporation for development work.

"Petromex" now has a daily average production in excess of 3000 barrels.

Exports of crude oil from California to Japan in 1935 totaled 10,432,565 barrels, while exports of refined products last year to Japan totalled 10,351,949 barrels. In the first quarter of 1936 the United States shipped direct from California to Japan 2,297,640 barrels of crude oil and 2,846,598 barrels of refined oil products. This may be compared with shipments for the first quarter of 1935, which were comprised of 2,361,286 barrels of crude oil and 3,240,636 barrels of refined oil products.

ARGENTINA UP

Private interests' yield shows small decline

Petroleum production in Argentina in 1935 showed an increase of 2.2 percent over 1934, due to a gain of 13.8 percent by Yacimientos Petroliferos Fiscales, the government organization for production of crude oil. Crude recovered in 1935 amounted to 2,279,575 cubic meters, an increase of 49,861 cubic meters over that recovered in 1934. Private companies operating in the Argentine sustained a loss of 4.7 percent.

The above figures are exclusive of production in the province of Jujuy, since drilling activities in this area are of recent inception and statistics thereon have not been compiled. It is believed that total production in Jujuy in 1935 amounted to about 500 cubic meters of crude petroleum, all of which was obtained by Yacimientos Petroliferos Fiscales.

Crude oil production in the Republic of Argentina, according to final official figues, for 1935 was as follows:

Argentine Production of Crude Petroleum

(Volumes in cubic meters)

Field	Yacimientos Petroliferos Fiscales	Private Companies	Total
Comodoro Rivadavia Territory of Chubut	857,026	956,480	1,813,506
Province of Salta	19,121	284,660	303,781
Plaza Huined Territory of Neuquen	61,516	84,978	146,494
Province of Mendoza	3,350	2,444	5,974
TOTAL	951,013	1,328,562	2,279,575

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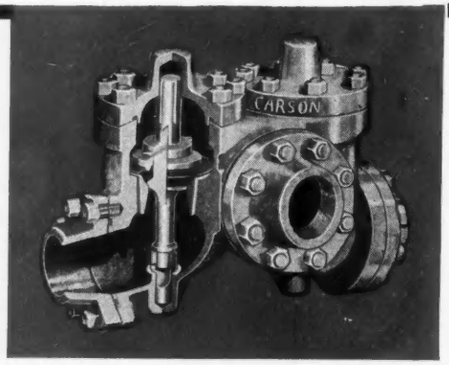

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Lovejoy Speaks

[*Continued from page 14*]

barrels, or an average of 36 barrels per well. Project similar calculations further into the future and you must conclude that we are facing deeper proration and relatively diminishing returns.

In my opinion then, deeper proration is inevitable. This affects the pocketbook of every oil producer. What can be done about it? There is only one answer and that is to slow down the rate of drilling new wells. If we do not, it is certain that our dollar return per well on both new and old ones will decline.

A newly discovered field can now look forward to years of steady flowing life but at a rate which returns the capital invested very slowly. We must attempt to restrict such new capital investment to a minimum by the drilling of the minimum number of wells. The recognition of acreage in proration formulae would be the greatest possible boon to the oil industry, as all incentive for overdrilling would be removed. If this is legally impossible, we can, at least in the new fields, agree among ourselves on a maximum well spacing program for those fields.

Although our developed reserve of crude oil is probably larger than at any previous time, and although our discovered but not yet developed reserve is very substantial, it does not appear that these reserves are excessive. The industry should attempt to maintain a discovery rate through wildcatting that will approximately balance rate of withdrawals. Should our discovery rate increase over what it has been for the past two years, the burden of carrying this enlarged underground inventory will sooner or later be translated into price reduction.

No Price Increase

Some operators feel that with our present drastic proration a higher price should be paid for oil. I do not entirely subscribe to this proposal, much as I would like to, for the reason that higher prices would undoubtedly result in more aggressive development of fields and greater well density in areas where well potentials are the sole basis of proration. The additional income received would be more than used up by additional drilling and we would aggravate the very condition that we are trying to correct. Higher prices would also stimulate wildcatting accompanied by a probable increase in discovery rate, which is not desirable at this time. In my opinion then, higher prices would tend to hasten deeper proration.

Having mentioned price, it would seem to me appropriate at this time to call your attention to current production figures. We are producing approximately 120,000 barrels per day more than the current demand as estimated by the U. S. Bureau of Mines. After adding to gasoline stocks during the winter at unprecedented rates the industry actually added 81,000 barrels per day of crude oil to stocks for every day in March and 61,000 barrels per day for the first 18 days of April. It will require a large increased consumption this summer to bring our top-heavy gasoline stocks down to a reasonable figure and unless we reduce current crude produc-

tion to the approximate Bureau of Mines figure which assumes no additions to stocks, we will be in serious trouble. In my opinion, no purchaser will be willing to continue additions to stocks at present prices.

As an immediate and pressing matter, let me urge upon this Association and all of its members, as individuals, to use your influence to bring our production in line with the Bureau of Mines figures. Each state is naturally desirous of a larger share of the total markets. Each state believes it is entitled to a larger share. The government, through the Bureau of Mines, renders us a great service in publishing each month, the estimated demand, and after weighing all the facts they recommend a certain amount to be produced from each state. These recommendations are made the request of our industry and yet we do not have sufficinet wisdom to follow them. The continued small overage when translated into income to the individual producer means nothing, but in the aggregate it is a burden the industry cannot carry. Each state in setting its allowables must realize that if they take more, some other state must take less. If the several states will accept the Bureau's recommendations and enforce them, new life will be breathed into the Interstate Compact.

It is essential that every operator understand this new concept of the oil industry. Otherwise, he cannot intelligently plan his expenditures or reasonably estimate his returns. He is no longer in an industry of violent fluctuations. He cannot suddenly develop a huge production from flush wells which in a few months will decline to a fraction thereof. In developing a property he is now investing money in a sound business-like way which will yield a slow return spread over a long period of time—much of the romance is gone perhaps, but still I think the thrill remains for the successful wildcatter—in spite of a 40-barrel allowable!

In conclusion, the following summary is offered for your consideration:

1. Restriction of flush production is true conservation and will result in the recovery at low cost of untold millions or perhaps even billions of barrels not recoverable under methods of production used 10 years ago.
2. We have built up a backlog of wells prorated to a production of two million barrels a day which rate can be maintained for a number of years.
3. The decline and abandonment of small wells is very slow.
4. Except to the extent of this decline and of increased demand there is no outlet for new wells.
5. In order to make room for new wells at the present rate of drilling, deeper proration is inevitable.
6. It is highly desirable to develop new reserves with a minimum number of wells and with minimum capital investment.
7. Wide well spacing is recommended as good economics.
8. Recognition of an acreage factor in proration would make possible 6 and 7 above.
9. Some states are permitting waste of reservoir energy—they should pass proper conservation laws.
10. States attempting to establish a larger production at the expense of others may upset the apple cart. In this lies our greatest danger.
11. Adoption and enforcement of the Bureau of Mines' recommendations is the best route for continued stability.

OUTPUT AT PEAK

U. S. March production at all-time high

OPERATING at the highest daily average ever recorded in this country, 2,921,500 barrels, a gain of 89,800 barrels over the corresponding month last year and 90,000 barrels over February, the American oil industry in March produced a total of 90,568,000 barrels of crude petroleum, according to the monthly report of the Bureau of Mines.

The month's output was 8,448,000 barrels over that of February and 9,080,000 barrels above that of March, 1935, and the total of 261,508,000 barrels produced during the first quarter of the year was 28,542,000 barrels above the corresponding period last year.

Every state except California, where the daily average was reduced from 587,400 barrels in February to 565,800 barrels, showed an increase in production in March, the bureau stated. Oklahoma's average of 548,100 barrels being the highest since September, 1933, while Louisiana set a new record of 204,600 barrels a day, of which Rodessa supplied 45,000 barrels from about 100 wells. Although daily average production in East Texas declined about 10,000 barrels from February, the bureau reported, the output of the state rose from a daily average of 1,124,100 barrels in that month to 1,143,700 barrels in March. Both Kansas and New Mexico also registered material gains in output, with the daily average for the latter reaching a new high of 69,300 barrels.

"The record-breaking production of crude, combined with a decline in runs to stills, exerted a pronounced effect on crude-oil stocks, the total of which increased for the first time in nearly a year," the bureau commented.

Although the demand for fuel oil declined materially in March, the yield of gasoline did not rise correspondingly and, in fact, the average declined from 42.9 percent in February to 42.6 percent, the report showed.

Daily average domestic demand for motor fuel during the month was 1,157,000 barrels, a gain of 11 percent over 1935, but although this increase was somewhat higher than expected, some of it, the bureau believes, evidently reflects shipments which were delayed by inclement weather in February.

Exports of motor fuel declined to 1,615,000 barrels, the lowest in many months and 38 percent below exports of a year ago, it was stated, but, the bureau added, "the situation as regards motor-fuel stocks improved materially in March, that is, the increase in finished and unfinished inventories for that month, 2,555,000 barrels, was small in comparison with the 9,000,000-barrel increase of February." Inventories at the close of the month totaled 79,038,000 barrels, of which 67,128,000 barrels were finished gasoline, 7,357,000 barrels unfinished and 4,553,000 barrels natural gasoline.

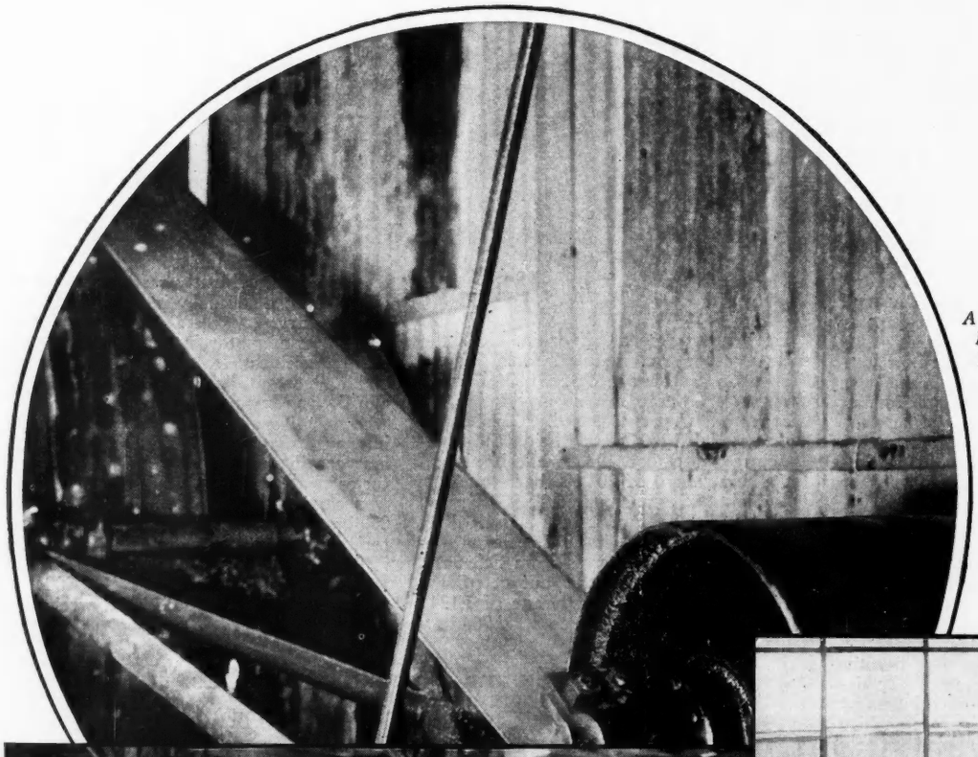
Supply and Demand of All Oils

(Thousands of barrels of 42 gallons)

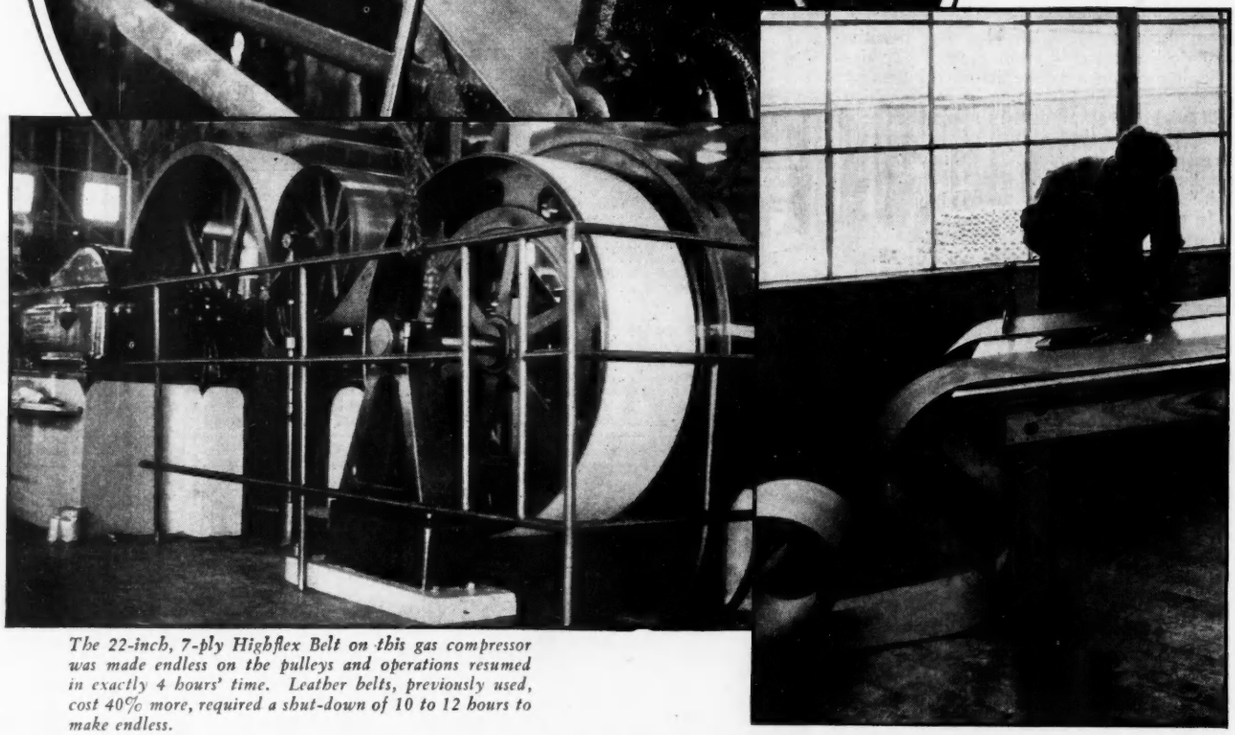
	March, 1936	February, 1936[1]	March, 1935	Jan.-Mar., 1936	Jan.-Mar., 1935
New Supply:					
Domestic production:					
Crude petroleum	90,568	82,120	81,488	261,508	232,966
Daily average	2,922	2,832	2,629	2,874	2,589
Natural gasoline	3,378	3,196	3,223	10,227	9,461
Benzol[2]	185	174	153	545	448
Total production	94,131	85,490	84,864	272,280	242,875
Daily average	3,036	2,948	2,738	2,992	2,699
Imports[3]:					
Crude petroleum:					
Receipts in bond	211	346	720	584	2,042
Receipts for domestic use	2,235	2,280	1,888	6,363	4,480
Refined products:					
Receipts in bond	1,465	943	970	3,523	2,754
Receipts for domestic use	495	602	837	1,670	2,912
Total new supply, all oils	98,537	89,661	89,279	284,420	255,063
Daily average	3,179	3,092	2,880	3,126	2,834
Increase in stocks, all oils	5,561	1,768	2,528	7,105	6,681
Demand:					
Total demand	92,976	87,893	86,751	277,315	248,382
Daily average	2,999	3,031	2,798	3,047	2,760
Exports:					
Crude petroleum	3,155	3,474	3,281	9,696	8,454
Refined products	5,777	5,378	6,564	18,250	16,805
Domestic demand:					
Motor fuel[4]	35,871	27,216	31,997	95,499	86,491
Kerosene	4,098	4,785	3,959	14,452	12,855
Gas oil and fuel oil[5]	34,196	38,132	31,510	111,010	96,834
Lubricants	1,863	1,520	1,617	4,779	4,471
Wax	84	85	75	258	208
Coke	349	644	465	1,692	1,760
Asphalt	989	878	709	2,564	1,913
Road oil	260	100	145	501	425
Still gas	4,136	3,833	4,007	12,071	11,328
Miscellaneous	195	179	205	543	571
Losses[4, 5]	2,003	1,669	2,217	6,000	6,267
Total domestic demand	84,044	79,041	76,906	249,369	223,123
Daily average	2,711	2,726	2,481	2,740	2,479
Stocks:					
Crude petroleum	313,189	310,812	339,139	313,189	339,139
Natural gasoline	4,553	4,218	5,252	4,553	5,252
Refined products	231,063	228,214	226,438	231,063	226,438
Total domestic demand	548,805	543,244	570,829	548,805	570,829
Days' supply	183	179	204	180	207

[1]Revised. [2]From Coal Division. [3]Imports of crude as reported to Bureau of Mines; imports of refined products from Bureau of Foreign and Domestic Commerce. [4]Beginning January 1936, natural gasoline losses are included in motor fuel demand; the 1935 figures will be placed on a similar basis later. [5]Net transfers of heavy crude in California included in fuel-oil demand.

Goodrich Belts now made



A 14-inch, 7-ply Goodrich Belt made endless by Plylock Method on pulleys of a California pumping unit. After almost 2 years' service, neither belt nor splice show any indication of wear.



The 22-inch, 7-ply Highflex Belt on this gas compressor was made endless on the pulleys and operations resumed in exactly 4 hours' time. Leather belts, previously used, cost 40% more, required a shut-down of 10 to 12 hours to make endless.

Goodrich

Endless Right in your own Backyard!

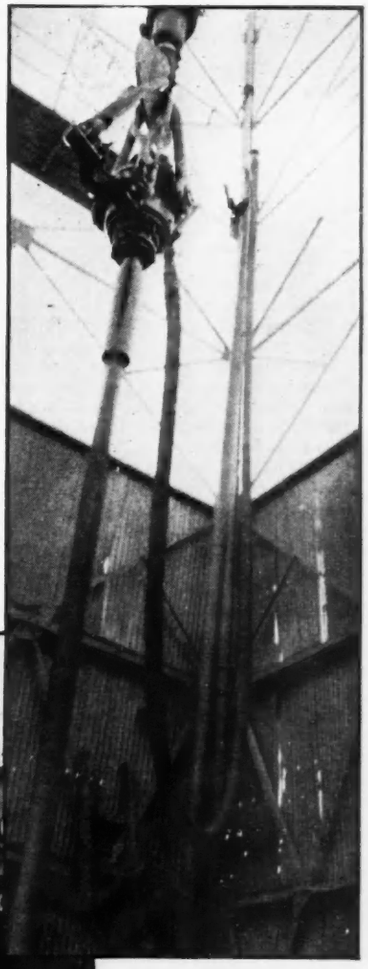
THERE is a unique belting service available to you. Your local Goodrich distributor is prepared to make Highflex or Multicord Belts endless in his own shop or, if electricity is available, directly on the pulleys of your pumping units.

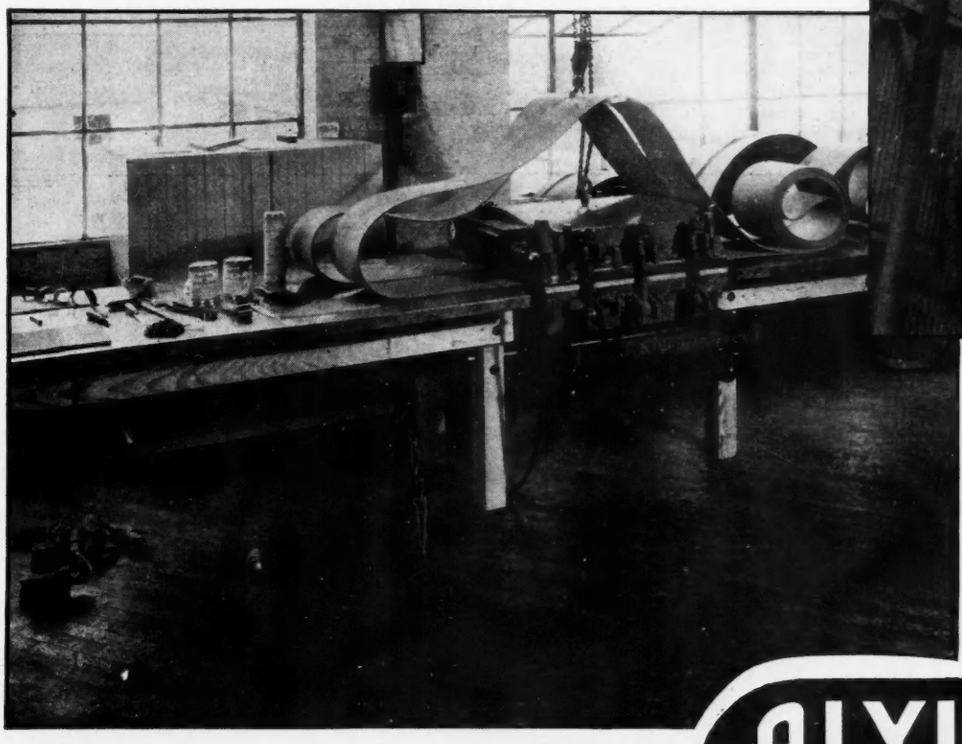
No longer need you wait weeks to obtain this superior belt. It will be only a matter of hours from the time you place your order until an endless Goodrich Belt is on the job and working.

Development by Goodrich of the patented Plylock Splice offers the distributor a quick, practical method for producing an endless belt which is equal, if not superior, to a factory-made endless belt. In the Plylock Splice the outer ply—where failure usually occurs—is carried down and under the surface for permanent protection against wear and windage. A portable electric vulcanizer completes the job, after which the belt is ready for immediate use.

Endless Highflex Belts reduce pumping costs because they last longer, save on repairs and eliminate belt-failure shut-downs. A Goodrich Distributor, located near you, is ready to serve you on a moment's notice.

Call him today or write The B. F. Goodrich Company, Mechanical Rubber Goods Division, Akron, Ohio.





After drilling two wells for a total depth of 10,677 feet, this 45-foot section of Goodrich Hipress Drillers Hose was still in such excellent condition that it could be used on a third location.

•

No more delays—trained mechanics in shops of Goodrich distributors can make Highflex Belts endless to your order in a few hours.

Highflex Belting

PLYLOCK BELT JOINT

U. S. PATENT NO. 1,996,529

Development Work

ACTIVE WITH 46 STARTS AND 75 COMPLETIONS

WEEKLY STAFF REPORT

Tulsa.—With 46 first reports and 75 completions accounted for in Oklahoma last week, together with 18 tests nearing completion in the Mansion area of Oklahoma City field, the state experienced a fairly busy week despite the fact that considerable delay in field work was caused by attendance of men at the International Petroleum Exposition.

Scouts made 46 first reports from 21 Oklahoma counties, Pontotoc County being in the lead with 13. Hughes County was runner-up with five starts; Carter and Jackson Counties had three each; Marshall, Okmulgee, Osage, Seminole and Stephens Counties, two each; and Atoka, Cleveland, Coal, Cotton, Creek, Jefferson, Noble, Okfuskee, Oklahoma, Pittsburg, Tillman and Tulsa Counties, one each. This compares with a total of 69 first reports during the preceding week.

Of the 75 operations which reached the completion stage during the week 53 are oil wells which added 66,208 barrels to the state's cumulative initial production, one was a gas well with an initial volume of 25 million cubic feet, eight were dry holes, and one was an abandoned location. Completed drilling dropped to 124,497 feet, which included 6370 feet in two wildcat dry holes and 1090 feet in three old wells.

Mansion Area Test

A mystery well which may hold the key to further northwestward extension of the "Mansion Area" of Oklahoma City pool was the most closely watched test in the area as drilling was resumed at about 6450 feet late in the week at Anderson Prichard Oil Company's Wheeler 1, NE SE SE SW 15-12n-3w, one quarter mile west of the nearest production. It was reported running low.

Eighteen other tests were either drilling below or had cemented casing below 6000 feet: Barnsdall Oil Company's Guthrie 1, SW SW SW SE 15-12n-3w, across Lincoln Boulevard from the Anderson Prichard well, was drilling below 6425 feet; Empire Oil & Refining Company's Levy 1-A, SE SE NW 22-12n-3w, on the Woodlawn Golf Course, was drilling below 6370 feet and thought to be in the upper part of the Simpson Group; British American Oil Producing Company and Midway Oil Corporation's McNabb 1, SW SE SE NE 22-12n-3w, drilling below 6290 feet; the same operators' McNabb 2, NW SE SE NE 22-12n-3w, waiting on cement to set at 6414 feet; McNabb 3, SW NE SE NE 22-12n-3w, waiting on cement to set at 6415 feet; McNabb 4, SW SE NE NE 22-12n-3w, drilling below 6190 feet; McNabb 5, NW SW SE NE 22-12n-3w, laying down drill pipe after topping Wilcox sand at 6395 feet and drilling to 6397 feet; British American Oil Producing Company et al's Warr 1, SE SE NW SE 22-12n-3w, drilling below 6350 feet; Barnsdall Oil Company et al's Lyons 1, SE SW NW NE 22-12n-3w, waiting on cement to set at 6423 feet; Barnsdall Oil Company and Bay Oil Corporation's Edwards 1, SW SW SE SE 15-12n-3w, drilling below 6080 feet; Anderson Prichard Oil Company's Proffitt 1, NW NE SW SE 15-12n-3w, drilling below 6300 feet; Phillips Petroleum Company's Hoagland 1, SE SW NE SE 22-12n-3w, was drilling below 6075 feet; the same operator's Murray 1, SE NE SW NE 22-12n-3w, drilling below 6190 feet; Neff 1, SE NW NE SE 22-12n-3w, drilling below 6030 feet; Phillips Petroleum Company, Uscan Oil Company and W. K. Royalty Company's Cooper 1, NE NE NW SE 22-12n-3w, waiting on cement to set at 6386 feet; the same operators' Vista 1, SE SW NW SE 22-12n-3w, waiting on cement to set at 6373 feet; Phillips Petroleum Company and British American Oil Producing Company's Liberty 1, SW NW SE SE 22-12n-3w, fishing at 6371 feet; Phillips Petroleum Company and Black Gold Petroleum Company's Sawyer 1, SE SW SW NE 22-12n-3w, drilling below 6160 feet; and Sawyer 2, NE SW SW NE 22-12n-3w, drilling below 6070 feet.

Twelve miles east of production in the Oklahoma City pool on the southern part of the Stella-Newalla Anticline Hollenbeck et al's McGinness 1, NW NW NE 15-11n-1e, topped Wilcox sand at 6234 feet, went out of the sand at 6265 feet and cored nine feet of dry cherty dolomitic lime between 6295 and 6213 feet. Between 6330 and 6340 feet a slight stain of oil was noted in the cuttings but a nine-foot core taken between 6340 and 6355 feet showed dry white sand and green shale which tasted salty. It was drilling ahead below 6395 feet in sand and green shale.

Pauls Valley District

Suggett and McElreath Incorporated gave a Pauls Valley district of northern Garvin County a new operation with the spudding of Lassater 1, SE SE SW 2-2n-1w, near the town of McCarty in the south central part of the county. Other concerns owning acreage in the vicinity are Phillips Petroleum Company, Gulf Oil Corporation, The Texas Company, Magnolia Petroleum Company, Mid-Continent Petroleum Corporation, Deep Rock Oil Corporation, Twin State Oil Company and Burke-Greis Oil Company. Pure Oil Company has a sizeable block in the area to the east. The test will be carried to Wilcox sand and will be the second deep test to be drilled by Suggett and McElreath in Garvin County.

Of the five most important tests in

Taylor Representative at Tulsa

FRANK B. TAYLOR, for several years associated with the oil industry through employment in the production, pipe line, refining and marketing branches, became Oklahoma-Kansas district editor of THE OIL WEEKLY, May 15, succeeding Floyd S. Swindell, resigned. His headquarters are at Tulsa.

FRANK B. TAYLOR

After he had finished grade school in Oil City, Pennsylvania, Taylor's family moved to Casper, Wyoming, where he graduated from Natrona County high school in 1924. Preparatory to entering the College of Engineering of Wyoming University, where he specialized in science, mathematics, engineering and advanced chemistry, he was employed by Carter Oil Company in Salt Creek field.

During vacations from college, he worked in the machine shop of the Standard Oil Company refinery at Casper. After spending some time as a welder and later in the pipe line department, he returned to Pennsylvania, but was soon called back to Wyoming by his father, then state oil and gas inspector. Back in Casper, he worked for The Texas Company and later for Continental Oil Company.

In February, 1931, Taylor accepted a position with Panhandle Eastern Pipe Line Company. During five years spent in the Panhandle, he gained experience in compressor stations, budget departments, pipe line work, measurement, electrical communication and in general production practices. He was in charge of measurement for the company before coming to his present connection.

southern Oklahoma one was nearing the record as the deepest drilling well in the state and the deepest so far drilled south of the Arbuckle Mountains, one was plugging back to acidize and test upper formations after being drilled to 7363 feet and three others had not reached depths which would warrant their being closely watched.

Sixteen miles nothwest of Marietta in northwestern Love County Sinclair Prairie Oil Company's Stockton 1, SE SE SW 26-6s-2w, cored from 8556 to 8574 feet and recovered 10 feet of limestone, the last two feet of which was stained with oil. A second core between 8574 and 8592 feet resulted in a recovery of 10 feet of limey shale. Cores in this part of the hole are showing formation dips as high as 15 degrees.

In the next township north and over the line in southern Carter County, Carter Oil Company's Vorhees 1, C SE SW 34-5s-2w, on one of the largest solid blocks ever assembled in southern Oklahoma, was drilling below 5900 feet. No markers upon which a structural check could be made have been picked up.

In the old Fox pool, where important Simpson production was discovered late in 1935, Gulf Oil Corporation's (Gypsy) Johnson 1, C SW SW 28-2s-3w, was drilling below 4300 feet. It is about one mile west of the discovery well and will be carried to the new producing horizon at approximately 8100 feet.

Southwestern Oklahoma

The Tillman-Jackson area in the southwestern part of the state continued to be an area of interest, especially in view of the fact that several operations which have not shown well in the granite wash or upper Cisco are to be carried to greater depths. Gulf Oil Corporation's (Gypsy) Wearmouth 1, SE NW SE 31-1s-18w, six miles northwest of Frederick in northwestern Tillman County, was shut down at 4530 feet awaiting the arrival of a string of 2½-inch drill pipe. Five and three-sixteenths casing is set on bottom. The same operator has moved in tools for McWilliams 1, NW SW SW 15-3s-17w, a wildcat operation about six miles southeast of Frederick in the southern part of the county. Equipment capable of drilling to 7000 feet or better is to be used. Shirley Clum et al's Maricle 1, NW NW SE 16-4s-14w, near Granfield in the southeastern part of Tillman County, was below 645 feet on a 3500-foot contract. It is located on a 3000-acre block. To the west near the town of Davidson, Johnson and Mitchell's Donahoo 1, SE NW NW 7-4s-17w, was drilling below 1370 feet in shale and lime. Contract depth is 2500 feet.

In Tipson area southeast of Altus in Jackson County, Gulf Oil Corporation obtained 180 barrels per day from Boucher 5, NW SE SW 32-1n-19w. Cisco pay was penetrated from 2542 to 2670 feet. The same operator's Shirley 2, SE NW NE 6-1s-19w, southwest of the pool, was drilling below 1150 feet. Shirley 3, NW NW NE 6-1s-19w, was waiting on cement to set on the surface pipe.

Southeastern Oklahoma

Continental Oil Company moved its exploratory campaign farther eastward in the Graben area of Pontotoc and Coal Counties during the week when it started digging cellar and pits for King 1, NE SW NE 26-1n-8e, a wildcat test five miles south and five miles east of Jesse pool and over the line in western Coal County.

In southwestern Hughes County, Phillips Petroleum Company's Eberle 1, NE NE SW 12-5n-9e, topped Woodford shale at 5235 feet and was drilling below 5311 feet. Northwest of Jesse pool Sunray Oil Company's Shumard 1, NE SW SE 2-1n-7e, topped Viola lime at 4103 feet and was drilling below 4235 feet. West of the old St. Louis area in the Seminole district, Wofford Drilling Company had completed rotary rig for No. 1, SW SW SE 14-7n-3e, a wildcat test about two miles west of production.

OKLAHOMA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BECKHAM COUNTY—		
Westoak Gasoline, Baldwin 1, sec ne 10-9n-25w	¶25	3535
CADDO COUNTY—		
Turner et al, Sapin 1, ne ne sw 1-5n-11w	*	3500
CARTER COUNTY—		
Samedan Oil, Higgins "D" 2, ne se nw 6-2s-2w	¶5-135	2075
Bull Head Oil, Dany 18, nw sw sw 4-4s-3w	8	1081
Shell Pet, Wirt Franklin 67, se sw ne 8-4s-3w	19	1050
COMANCHE COUNTY—		
Shirley Clumm, Langwell 1, nw nw sw 27-2n-10w (pb 855)	*	1085
COTTON COUNTY—		
Harper & Turner, Barnes 1, cnw ne 16-4s-14w	lcn.	abd.
CREEK COUNTY—		
Sinclair Prairie, Watson 6, sw ne ne 15-14n-8e (otd 3217) (pb 3811)	20	3815
HUGHES COUNTY—		
Carter Oil, Hampton 5, nw se ne 1-9n-8e	180	1672
Mid-Continent, Hampton 7, se nw ne 1-9n-8e	500	1735
Manahan Oil, Oliphant "F" 1, se ne se 2-9n-8e	100	1833
Buell, Buck 4, csw 21-9n-10e (pb 3683)	*	3823
JEFFERSON COUNTY—		
Long, Yingling & Lauck, Seay 18, se sw se 3-7s-5e	21	1094
LINCOLN COUNTY—		
Stanolind-Amerada, Adams 2, nw ne ne 5-14s-3e	1234	5091
MURRAY COUNTY—		
Revels et al, Wolfe 1, ne ne ne 18-1n-2e	*	2870
OKFUSKEE COUNTY—		
Manahan Oil, Dolton 4, nw se se 36-10n-8e	290	1746
Dolton 5, sw sw se 36-10n-8e	150	1728
Ark Royalty Oil, John Fisher 1, sw se se 18-10n-9e	96	1834
Amerada-Stanolind, Carolina 2, nw sw sw 31-10n-9e	157	1771
OKLAHOMA COUNTY—		
Barnsdall, Bracht 3, se sw sw 23-12n-3w	19,020	6513
British-American, Burnham 1, se nw sw 23-12n-3w	7683	6502
Larkin & Warr, Lucas 1, ne nw sw 36-12n-3w	60	6419
OSAGE COUNTY—		
Ray Bransetter 3, cel w½ e½ sw 28-22n-11e (pb 2100)	25	2108
Lewis & Continental 7, nw ne se 9-24n-7e	425	2614
Lewis & Continental 8, ne nw se 9-24n-7e	547	2594
Labidie 1, sw sw ne 14-24n-8e (otd 1956) (pb 2323)	10	2334
Sinclair Prairie 7, ne sw se 9-25n-6e	¶6-2642	2820
PAWNEE COUNTY—		
Reynolds, Downing 1-A, nw nw sw 24-20n-8e	25	1123
PONTOTOC COUNTY—		
Magnolia, Morris 1, se sw se 21-2n-7e	¶4¾-3254	3790
Blackstock, Moddy 1, ne ne ne 27-2n-7e	3835	4270
Samedan Oil, Holkum 3, se sw ne 27-2n-7e	¶2½-4162	4274
Moore, Schauers 8, nw se nw 29-2n-7e	¶2-2722	4349
Crosbie, Hardin 2, se ne ne 30-2n-7e	¶1¼-1456	3754
Mid-Texas, Harbet 1, sw sw se 30-5n-4e	50	1946
Larson et al, Robertson 1-A, nw sw se 23-5n-8e	5	803
POTTAWATOMIE COUNTY—		
Commercial Drlg. Brandenburg 1, nw nw sw 34-8n-4e (pb 4063)	165	4100
SEMINOLE COUNTY—		
Lynch, Cravins 1, sw se ne 19-5n-6e (pb 1820)	*	2622
Vierson, Harjo 2, nw se nw 11-6n-6e	27	2460
Soverign, Norvell 1, se ne se 26-6n-7e	*	2300
Grisson Oil, Barnhart 2, se nw nw 8-6n-8e (pb 3000)	*	4152
Blackwell, Baker 4, nw nw se 11-7n-6e (ptd 4174)	480	4288
Carter Oil, Pipkin 6, cw½ ne sw 2-10n-6e	424	4134
STEPHENS COUNTY—		
Wilkens, Crump 8, sw se se 10-2s-5w	8	858
Wilkins et al, Crump 9, nw se se 10-2s-5w	10	805
Mudge Oil, Robertson 4, cel sw sw 10-3s-5w (pb 1580)	*	1964
The Texas Co., Tomlin 2, sw nw nw 15-3s-5w	26	1463
TILLMAN COUNTY—		
Gulf Oil, Shirley 1, ne nw ne 6-1s-19w	476	2628
TULSA COUNTY—		
Johnson O&R, Stibbins 1, ne sw se 30-19n-10e	18	2261
Johnson O&R, Bailey & Holmes 1, ne nw ne 31-19n-10e	130	2258

*Failures; †Junked; ¶Million cu. ft. gas.

ROESER & PENDLETON

East Texas properties purchased by Atlantic

Tyler, Texas.—Atlantic Oil Producing Company has purchased the option held by R. G. Trippett and A. H. Meadows, Shreveport, on the entire holdings of Roeser and Pendleton, Incorporated, in the East Texas field.

Paying in excess of $53,300 net per well, the Shreveport group contracted May 14, subject to title approval and a prior purchase right held by J. K. Wadley on such properties that he holds and interest in, to pay Roeser and Pendleton, Inc., $400,000 cash and $1,200,000 from one-half of the net production. The latter operated 11 leases, comprising 65 wells on 490 acres, and held net interest in 29¼ wells and 221 acres.

Wadley negotiated the trade between the Shreveport interests and Atlantic Oil Producing Company whereby the latter acquires Roeser and Pendleton, Incorporated's, equity and other outstanding interests in the properties at a greater average cost per well than the original deal called for.

B. A. Skipper Production Company sold its Clayborn lease, with 11 marginal wells situated in the I. Beatty Survey near the west edge of production in Gregg County, to Sklar Oil Corporation for $25,000 cash and an additional $100,000 payable from one-half of the production. Purchaser is obligated to drill two additional wells. Sklar Oil Corporation also acquired the above concern's W. H. Warlick lease and one well in the Beatty Survey, but the consideration was not made public.

Austin, Texas.—A hearing to fix rules and regulations for the spacing, drilling, completion, and operation of wells in the new Talco field, Titus County, has been scheduled by the Texas Railroad Commission for June 2 at Austin.

Because of the wide diversity of ownership in the field the spacing of wells may become a serious problem. If the commission provides a rule other that the statewide rule it appears now that 10-acre spacing will be ordered.

New Pool Found

ACID USED TO COMPLETE ELLIS COUNTY WILDCAT

WEEKLY STAFF REPORT

Wichita, Kansas.—A new pool in northern Ellis County, the partial definition of the north limit of production in Hilger pool of southeastern Reno County, and the starting of several important wildcat tests were items of interest in the Sunflower state last week.

Despite the rapidly increasing amount of water and the attendant rapid decline in oil production in Oxford pool of eastern Sumner County, Kansas has gradually increased its potential rating. On June 1 the state's total is expected to exceed 1,000,000 barrels per day, by far the largest production capacity ever established by the state in more than 40 years of productive history.

The past week brought reports on 41 completions, of which 25 were oil wells with total initial rating of 20,599 barrels per day, 14 dry holes, and two abandoned locations. Included in the 112,225 feet of completed drilling was 18,182 feet in one wildcat discovery well and six wildcat dry holes and 85 feet in one old well. Barton and Russell Counties were tied for the lead in new work with eight first reports each; Rice County had four; Butler, Greenwood, McPherson, Reno and Sumner Counties, two each; and Ellsworth, Harvey, Rooks, Rush, Seward and Woodson Counties, one each; a total of 36 first reports from 14 counties.

Ellis County

Ellis County had another new pool 10 miles north and slightly east of Hays, the county seat. Reynolds et al's Walter 1, SE NE SW 2-12s-18w, was drilled to 3165 feet, treated with 1000 gallons of acid, and pumped 1159 barrels of 40-gravity oil in 24 hours. The new well was cutting one percent water, three percent paraffin and six percent B.S.

Ewers-Simpson Oil Corporation et al's Gross 1, SE SE NW 29-14s-17w, six miles northeast of the Ruder pool in southeastern Ellis County, topped Oswald lime at 3244 feet, had a showing of oil from 3322 to 3335 feet and was drilling below 3420 feet. Northwest of Hays in the northwestern part of the county, Jones Brothers Drilling Company's Solomon 1, SE SE SW 28-11s-19w, topped Topeka lime at 3075 feet and was drilling ahead with no showings reported. It is said to be 36 feet structurally higher than Marland Oil Company's Vine 1, SW SW SE 27-11s-19w, completed as a dry hole at 3840 feet in January, 1929.

Reno County

Southwestern Reno County had a new wildcat operation as D. R. Lauck et al started drilling at Prather 1, C SE 18-27s-8w, nine miles southeast of the Lerado pool.

Empire Oil & Refining Company appeared to have partially defined the northern limit of production in the important Hilger pool of southeastern Reno County with the abandonment of Holjte 1, NW NW NE 9-26s-4w. The test was drilled to 4118 feet in Viola lime, from which it yielded 14 barrels of oil and 800 barrels of water on a potential test. That the north end of the pool is erratic and that this showing may not be conclusive is evidenced by the fact that good production has been established to the north and northwest.

West Central Kansas

Murphin et al's Weshausin 1, SE SE SE 19-9s-16w, near the town of Laton in southeastern Rooks County, topped Topeka lime at 2915 feet and was drilling ahead below 2962 feet. No showings had been reported.

In northeastern Rush County, Rosespring Drilling Company's Jacobs 1, SW SE NW 8-16s-17w, a wildcat test near the town of Liebenthal, was shut down at 3581 feet with a hole full of sulphur water. It may be abandoned at that depth.

Continental Oil Company's Holcomb 1-A, C W½ W½ NE 26-11s-23w, an offset to the discovery well in the newly found Holcomb pool of northern Trego County, topped Lansing lime at 3610 feet and was drilled to 3615 feet, where it is being standardized.

Stafford County suffered a setback early in the week when Stanolind Oil & Gas Company announced abandonment of Shotton 1, SW SW SW 27-22s-13w, north of St. John in the northwestern part of the county. Arbuckle (Siliceous) lime was topped at 3826 feet and a showing of sulphur water was found between 3862 and 3878 feet, the total depth. A showing of dead oil was encountered near the top of the lime.

Schermerhorn Oil Corporation's Hunter 1, NE NE NE 29-18s-15w, north of Albert townsite in western Barton County, topped the so-called Reagan sand at 3484 feet and was estimated making one million cubic feet of gas when only one foot in the sand. It was being drilled ahead. Nearest production is in the Albert pool 1¾ miles southwest. Stanolind Oil & Gas Company's Eberhardt 1, NW NW NW 24-19s-11w, southeast diagonal offset to the discovery well in the Eberhardt pool of southeastern Barton County, was drilled to 3356 feet in Arbuckle (Siliceous) lime and yielded nine barrels of oil per hour on the swab. It was acidized and shut in for the reaction. The Eberhardt pool was discovered by Downing et al when they completed Eberhardt 1, SE SE SE 14-19s-11w, at 162-barrel producer from Arbuckle (Siliceous) lime at 3311 to 3360 feet, the total depth.

KANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARTON COUNTY—		
The Texas Co., Schmidt 2, nw ne nw 36-19s-11w	1346	3292
Murphy & Morgan, Robinson 1, ne ne sw 21-16s-14w	*	3492
Moore & Mabee Drlg., Feist 1, nw sw se 29-18s-11w	*	3513
Derby Oil, Roth 1, sw sw ne 25-19s-11w	*	3385
Sinclair Prairie, Isern 1, se se sw 25-19s-11w (pb 3312)	244	3322
Mid-Continent, Schmidt 4, se ne sw 36-19s-11w	1797	3282
Morgan & Flynn et al, Zimmer 1, se se sw 20-19s-14w	*	3593
Simpson, Noble & Atlantic, Hiss 1, cnw ne 31-20s-13w	969	3292
COFFEY COUNTY—		
Henderson & Holden, Levering 1, ne ne se 12-23s-14e	*	1693
COWLEY COUNTY—		
Roth-Faurot & Texas, David "A" 2, se ne sw 35-30s-4e	142	2974
ELLSWORTH COUNTY—		
Empire's Kroesch 1, nw nw se 33-17s-9w	*	3274
GREENWOOD COUNTY—		
Houston-Okla. Oil, Hout 3, sw sw sw 11-24s-12e	*	1778
HARVEY COUNTY—		
Sinclair Prairie, Martens 5, sw nw se 19-22s-3w (otd 3548)	*	3633
KEARNY COUNTY—		
Meyers et al, Beaty 1, cne 28-25s-36w	lcn.	abd.
RENO COUNTY—		
Olson & Shell, Hutchinson Lumber Co. 2, cnw ne 24-23s-4w	¶5 275	3383
Sinclair Prairie, Hoffer 1, ne nw nw 31-24s-4w	*	3415
McPherson Drlg. et al, Schrock 1, sw sw nw 27-24s-5w	*	3918
RICE COUNTY—		
Continental, Lansing 2, sw se se 25-18s-8w	1553	3178
Slick, Pryor & Lockhart, Mezger 4, ne ne ne 21-20s-10w	1894	3355
Empire's Gouldner 4, sw sw sw 9-18s-9w	268	3244
Vickers Pet., Gouldner 3, ne nw nw 16-18s-9w	863	3234
Bradley Bros., Wendell 6, ne se ne 32-19s-10w	*	3378
Gulf Oil, Knop 1, sw nw nw 33-19s-10w (pb 3287)	995	3292
Saco Oil, Foote 2, sw se ne 7-20s-9w	736	3286
Gulf Oil, Hartle 5, ne nw nw 15-20s-9w	453	3260
Mid-Continent, Risse 3, nw se ne 6-20s-10w	1933	3299
RUSSELL COUNTY—		
Hartman & Blair et al, Boxberger 1, ne ne nw 33-13s-14w	596	3293
Gurney "B" 1, se se se 23-14s-14w	648	2978
Billings, Witt 2-A, se ne se 4-14s-15w	825	3124
National Ref., Reinhardt 1, nw nw se 25-14s-15w	692	3185
Sinclair Prairie, Hefferman 4, nw nw se 26-15s-13w	218	3277
Southern Oil, Sellens 1, sw sw sw 29-15s-13w	2003	3270
Schaffer 1, ne ne ne 31-15s-13w	1272	3259
STAFFORD COUNTY—		
Lauck et al, Snyder 1, sw sw ne 3-21s-11w	lcn.	abd
SUMNER COUNTY—		
Sinclair Prairie, Kamas 8, se ne sw 28-31s-1w	203	3686
WOODSON COUNTY—		
Sheedy et al, Klick 5, nw sw se 20-25s-14e	200	1460
Klick 4, se se se 20-25s-14e	325	1465
Tipton 1, ne ne ne 29-25s-14e	150	1480
Roy Johnson, Hare 1, cn½ nw ne 32-25s-14e	*	1452
Mendenhall et al, Hunter 1, ne ne ne 36-25s-14e	*	1502
Young 1, se se nw 2-26s-14e	*	1577

*Failures; †Junked; ¶Million cu. ft. gas.

RECORD SCOUT MEET
Dallas reports early reservation rush

Dallas, Texas.—Largest gathering of scouts in the history of the oil business will occur when members of the National Oil Scouts Association of America holds its 13th annual convention here May 29 and 30. Scouts from Oklahoma and Kansas will participate for the first time, having elected early this year to consolidate their bi-state organization with the national body, which has been actively supported for a number of years by nearly all scouts in other oil producing states in the Southwest.

Advance reservations for hotel accommodations reveal that a big turnout of scouts from the upper Mid-Continent is assured, according to John H. Langston, chief scout Sun Oil Company and general chairman of the arrangements committee. Convention headquarters will be established in the Baker Hotel. The arrangements committee has stressed the importance of making hotel reservations promptly.

Initial business session of the convention has been set for 10 a.m. May 29. The program committee has arranged for a number of technical subjects of particular interest to scouts to be covered by guest speakers. William L. Horner, Dallas engineer and geologist, will present a paper with illustrations on Core Analysis as a Control to Well Completion. Paul W. Pitzer of Pitzer & West, Breckenridge producers, and an official of Chemical Process Company, will talk on Acidizing of Wells.

Bridge luncheon will be held on May 29 for the visiting ladies. Facilities of the Lakewood Country Club will be available to scouts beginning 1:30 p.m. for their annual golf tournament, with the J. Edgar Pew cup as the feature prize. Winners will be announced at the stag buffet lunch and smoker at the Dallas Athletic Club to begin at 7:30 p.m.

Election of officers will take place at the final business session to be held 9:30 a.m. Saturday. Scouts and their wives are invited to take a sight-seeing preview of Centennial buildings and grounds, leaving convention headquarters at 3 p.m. Saturday. The convention program will be concluded with a dinner dance in the crystal ball room of the Baker Hotel.

Jesse L. Bullard, Shell Petroleum Corporation, San Antonio, is president of the scouts' organization. Other officers are: Joe Haygood, Humble Pipe Line Company, Midland, first vice president; C. O. Faulk, Humble Oil & Refining Company, San Antonio, second vice president; Dwight L. Becker, Amerada Petroleum Corporation, Houston, chairman of the executive committee; and Howard Boyd, Magnolia Petroleum Company, Dallas, secretary-treasurer.

Annual year book published by the association, giving statistics and pertinent data on all oil and gas areas represented by the membership, will also include fields in Oklahoma and Kansas. Special effort is to be made, according to Boyd, to complete the book in time for delivery at the Dallas convention.

NORTH TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
L. T. Burns et al, Parrish 10, sec 26	*	691
Cable Oil Co., Webb 11, blk 5	25	693
C. B. Christie et al, L. F. Wilson 4, sec 1	50	1610
Conoco, S. M. Gose 54	22	1616
Consolidated-Primrose & Deep O.D. Co., Wilson 4	1200	2242
H. H. Fraser et al, Wilson 11-B, lot 19	10	881
Hamilton Pet. Co., Abercrombie 37	15	1176
Abercrombie 39	10	1162
Harry Hines et al, Ward Bros. 4	67	944
Kimbell & Bohner, Carpenter 9, sec 89	160	1060
Morrison & Jackson, J. J. Perkins 3, blk 21	*	655
Pace Pet. Co., John Darilek 1, sec 1582	*	1475
White & Duncan, H. O. Prideaux 1	*	730
Wilson & Ligon, Kolb 1, blk 116	*	1397
D. L. Wolf et al, J. W. Hasson 1	*	961
BAYLOR COUNTY—		
Consolidated Oil Co., Portwood 1-BB, sec 1573	*	1416
K. R. March et al, W. B. Self 1	*	2001
Pet. Producers Co., Portwood 31, sec 1281	*	1422
COOKE COUNTY—		
Fain-McGaha Oil Corp., John Hofbauer 2, blk 9	*	1710
Harrison & Dillard, Trew 4	130	1113
Larkins, Warr & Johnston, V. D. Randall 2	3	1804
Spares 1	*	2056
J. H. Masterson et al, R. J. Timmis 1	*	1925
F. W. Merrick, Inc., Andress 4	*	1524
Murray Inv. Co., Fred Herr 1	*	1317
Rohmer 7	*	1000
Schermerhorn Oil Corp., M. Kessler 3, blk 5	15	892
United Producers Co., J. W. Mount 1	*	1801
JACK COUNTY—		
Gwynn & Overby, S. J. Beasley 2	¶12.6-15	3026
Iron Mt. Oil Co., Birdwell 2	425	3000
Nelson Oil Synd., J. P. McCoy 1	25	2992
Ray & Staniforth, L. J. Hester 1	60	2996
MONTAGUE COUNTY—		
Conoco, J. W. Maddox 31-A	24	919
WICHITA COUNTY—		
J. A. Coker et al, W. L. Doyle 1	*	500
Coleman & Coppock, G. R. Hodge 1, blk 39	12	841
Fain-McGaha Oil Corp., S. P. Gibson 1, blk 302	5	1935
Worth Oil Co., J. L. Jackson 3, blk 16	3	701
WILBARGER COUNTY—		
Fain-McGaha Oil Corp., Waggoner Est. 9-Y, sec 43	20	2412
YOUNG COUNTY—		
Paul Atchley et al, Benson 1-A, sec 1392	85	896
Jake Bundy et al, J. B. Foster 1, sec 620	*	600
Duncan et al, Benson 10, sec 1391	150	917
Harter Oil Corp., Bloodworth 7-A	2	1095
Kimmell, Lee & Co., Cullers-Dean 9, blk 19	10	559
Cullers-Dean 10, blk 19	20	570
Pitzer & West, S. L. Thornton 1, sec 1015	*	4433
Sams & Kubecka, Cullers 2-A	*	665
Solo Oil Co., O. B. Stowe 8, sec 2	*	1128
Underwood Drl. Co. et al, Campbell-Conoco 6-E	70	879
Wooten & Wilson, S. L. Scott 1, sec 345	*	843

*Failures; †Junked; ¶Million cu. ft. gas.

POTTSVILLE TEST

Ranger, Texas.—Seaboard Oil Corporation's Julia Dawson 1, second test in the Pottsville area, northwestern Hamilton County, was drilling below 3900 feet, logging Ellenberger limestone at the close of the week. It will be carried to the Hickory sandstone section of the Upper Cambrian, which has been reached by very few tests in West Central Texas. High pressure gas production was passed up in the Marble Falls lime near the 2500-foot level, thus assuring a successful completion by plugging back.

HENRY L. DOHERTY, president of Cities Service Company, celebrated his sixty-sixth birthday anniversary on Friday, May 15. The event was celebrated by Cities Service subsidiaries in many parts of the United States.

WEST TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CRANE COUNTY, (McCamey Field)—		
Rushwold Oil Co.-J. M. Rush, Cowden-Conoco 1	150	2460
CRANE COUNTY, (McClintic Field)—		
Geo. L. McCamey et al, McClintic 1	*	3356
CRANE COUNTY, (Waddell Field)—		
Magnolia, W. P. Edwards 5	7156	3521
CROCKETT COUNTY—		
California Co., J. M. Shannon 6	110	2547
ECTOR COUNTY, (North Cowden Field)—		
Eppenauer Drl. Co., TP Land Trust-Conoco 2-A	465	4261
Stanolind, J. M. Cowden 30	500	4276
GLASSCOCK COUNTY—		
Conoco-Group 1 Oil Corp., Settles 5-S	416	1245
HOWARD COUNTY—		
Conoco-Group 1 Oil Corp., Eason 8	1072	2447
Sinclair Prairie, Dodge 36	790	2770
Dodge 37	373	2820
JONES COUNTY—		
Thos. D. Humphrey et al, H. Dorsey 8	720	2225
H. Dorsey 11	3000	2217
Lesh & McCall, J. W. Jennings 1	240	2073
PECOS COUNTY, (Masterson Pool)—		
ABC Oil Co., Gregg-Sun 2	*	1576
PECOS COUNTY, (Torborg Field)—		
Stanolind, Tippett 18-B	45	388
SCURRY COUNTY—		
J. G. Bristow & R. H. Cantrell, Shannon-Magnolia 1	*	3706
UPTON COUNTY, (McCamey Field)—		
J. W. Ellis et al, J. W. Robbins 3-A	600	2158
WARD COUNTY—		
California Co., L. A. Adams 2	¶4½	2450
Elliott & Hardesty, C. Wallis 4	305	2627
Jess Gibson et al, Owen-Sloan-Llano 2	140	2750
Gulf, Hutchings 52-D	439	2753
Richardson Oils, Inc., Hathaway 1	¶12	2275
WINKLER COUNTY, (Halley Field)—		
Fritz Estill et al, S. M. Halley 1	235	2907
WINKLER COUNTY((Hendrick Field)—		
Atlantic & Wahlenmaier Pet. Corp., Walton-Humble 1-A	5000	3070
WINKLER COUNTY, (Keystone Field)—		
Falcon Co., McCutcheon-Humble 3	211	3680
WINKLER COUNTY, (Sayre Field)—		
Humble, Howe 4	1523	2985
Magnolia, Walton 19	281	2911
Walton 21	418	2930
Walton-State 1	20	3695
J. C. Maxwell, Inc., Walton 2	¶4 & 150	3159
Sun Oil Co., L. Daugherty 1	444	2930
WINKLER COUNTY, (Wildcat)—		
Superior O&G Co., M. J. Hill 1	*	3155

*Failures; †Junked; ¶Million cu. ft. gas.

TEXAS PANHANDLE
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Ryan Consolidated Pet. Corp., blk 11	594	3162
United Crude Oil Co., Cooper-Shell 4	1070	3070
GRAY COUNTY—		
Christie-Hickman Drl. Co., E. E. Gethings 1-A	314	2718
Empire O&R Co., Shields 8	571	3225
LeFors Pet. Co., Bull 3	357	2903
Shell Pet. Corp., Sanders 2-A	483	2952
HUTCHINSON COUNTY—		
Gulf, Pitcher 5	398	3170
McIlroy Oil Co., Hardin-Hodges 1	172	3097
Johnson 1	198	3098
Owl Oil Corp., J. W. Moore 2	644	3148
Paloma O&G Co., Lewis 3	746	3081
Harry Stekoll et al, Whittenburg 6-H	437	2982
MOORE COUNTY—		
Shamrock O&G Co., Robertson-Gulf 2-C	¶8.9	3565
WHEELER COUNTY—		
Teco Production Co., O. W. Stewart 1	¶2¼	2248
Wilcobur Oil Corp. (J. G. Burch), Plummer 3	38	2524

*Failures; †Junked: ¶Million cu. ft. gas.

Talco Rated High

ESTIMATES GIVE FIELD 100 MILLION RECOVERY

WEEKLY STAFF REPORT

Mount Pleasant, Texas.—Estimates on the probable oil recovery from the Paluxy sand zone underlying the Talco faulted structure on the north rim of the East Texas Woodbine belt range beyond the 100,000,000-barrel mark. Conservative appraisals placed on this outstanding oil strike for the current year allow for approximately 7000 productive acres, extending in a general east-west direction into parts of Titus and Franklin Counties and centering upon the south portion of the town of Talco. Five completions in the 4200-foot sand series have proved the structure for production parallel to the fault plane for a distance of 4½ miles, and subsurface data supports forecasts of the field being eventually extended to about 7 miles in length, with a width varying from a "shoestring" to 1½ miles. Advance predictions on average recovery per acre range upwards from 15,000 barrels.

The Paluxy zone, which is the first sand member of the Trinity series, is a new source of production in the East Texas basin. It has immense possibilities along the northeast arch of the Mexia fault plane, particularly to the west and southwest of the Talco structure, as exploration work in the past has been largely restricted to the Woodbine horizon. This geological trend will not produce from the Woodbine, but the previous development serves as an excellent guide in waging a development campaign in the Trinity series that will afford decisive tests with a minimum volume of drilling. Direct hit was made by the first test at Talco to reach the Paluxy as the position of the fault plane had been previously outlined by Woodbine failures.

The Talco field is headed for a major drilling campaign. It is likewise destined to become a troublesome area for state authorities in regulating and apportioning production. There are 6 active tests, all but one being on virtually proved leases, and locations have been approved for 99 additional tests in the two counties.

Majors predominate as lease owners, but independents that are well fortified with surplus cash gained in recent years from their respective producing and royalty holdings in the East Texas field have located and acquired an exceptionally great number of small tracts and town lots.

Forty-eight independent companies and groups of individuals have been authorized to drill on leases, varying from 17/100-acre to 108.5 acres in area. Only three majors—Humble Oil & Refining Company, Magnolia Petroleum Company and Tide Water Oil Company—have undertaken active operations.

Potential source of agitation between the majors and independents looms over the almost unanimous policy adopted by the latter in spacing wells 150 feet from property lines and 300 feet between wells. Closer spacing prevails on permits approved by the commission for small tracts. Permits have been granted for the drilling of 6 tests on each of 2 adjoining 15-acre leases that are surrounded by a major, and 12 locations have been staked on a 25-acre lease in Franklin County that bears the largest of the 5 producers.

Should later developments support the forecast of 7000 acres of productive territory, the field may receive in excess of 1000 tests. However, the pace-setting independents may be forced to reconsider on present plans by reason of limitations of markets and price for the comparatively low gravity and off-brand grade of crude obtained from the Paluxy zone. Another factor is the possibility of the railroad commission adopting a production restriction plan that will penalize excessive drilling. Use of acreage as a factor in apportioning production between leases will be resisted vigorously by the rank and file of the independents. Generally speaking, they comprise many of the anti-acreage leaders from the East Texas field.

Production from the Paluxy zone at Talco is an intermediate base crude, testing 24.5 gravity (corrected). It is not suitable for skimming plant operations, as the gasoline recovery ranges from 13.5 to 15 percent, with 2.63 percent sulphur. Quality of the oil automatically places limitations on the market demand. The discovery well owners made a spot sale of 10 cars in March to a refinery at Houston at a minimum price of 60 cents per barrel. This figure was used by Humble Oil & Refining Company in establishing the first price posting effective April 15. The latter is limiting its takings to controlled production, and recently made an unsuccessful effort to dispose of the oil to Houston refineries after routing same via tank cars to the Coast.

Talco operators are inclined to believe that the low-grade crude will soon find a place in the market, and that the bearish stand now taken by plant owners will be reversed. Such views are largely predicated on the fact that when the Woodbine first produced at Mexia, the Permian lime in West Texas, and the heavy grade of production at Smackover each were temporarily condemned as being desirable oils for manufacturing motor fuels.

In addition to the 6-car rack operated by Humble Oil & Refining Company, limited shipping facilities are held by Pleasant Oil, Inc., owner of the discovery well. The latter has been selling its production lately as fuel for drilling rigs at 80 cents per barrel delivered, with a few cars consigned to Southport Petroleum Company's cracking plant at Kilgore, Texas, at 65 cents per barrel aboard cars. Independent Crude Oil Trading Company, Dallas, owned jointly by C. & G. Oil Company, Byrd & Frost, Inc. et al, has installed a 10-car rack on the Paris & Mount Pleasant Railroad near the other two racks adjacent to Talco, with a 4-inch gathering system. This new entrant is contemplating the erection of large tankage to assure uninterrupted oil withdrawals from controlled properties.

Humble Oil & Refining Company will start work shortly on a tank farm, and Magnolia Petroleum Company is expected to erect storage facilities pending decision to enter the field with a pipe line. The tariff on Talco crude moving to the Coast in tank cars is 39.32 cents per barrel.

Humble Pipe Line Company has not made definite plans to enter Talco with a line, but is reported to have given the matter consideration. Its nearest connection would be with existing facilities in the East Texas field, involving about 65 miles of line. An alternative would be to build northeast and intercept the Standard Pipe Line Company's Oklahoma-Baton Rouge system near the southeast corner of Oklahoma. Gulf Refining Company is more favorably situated, having a tank farm and booster station on a multiple line about 20 miles southwest of production. Gulf Oil Corporation will participate heavily in Talco production, but has not launched development work.

Completed wells in the Paluxy zone at Talco now cost about $25,000, but this figure is likely to be shaded as operations gain. Rotary is used for drilling, but cable tools may be pressed into service for penetrating the oil zone, providing a test of this method now under way proves successful. Contractors are paid $3.50 per foot. Wells can be completed in 25 days. The present casing program calls for a short string of 10-inch or 12½-inch surface pipe, and a new string of 7-inch casing cemented on top of the oil horizon. No high pressure connections are needed, as very little gas is found with the oil. Tests spotted so as to intercept the fault plane above the Georgetown lime section can expect about 700 feet of this hard formation, otherwise the well log records sand, shale, chalk and lime-shells.

The last three completions at Talco afforded east and west extensions. Each penetrated the Paluxy zone about 170 feet without encountering water. Logs of these wells reveal that three or more distinct oil saturated sand horizons exist. The lower beds offer the best saturation. Preliminary calculations on the quantity of oil saturated sand and sandy-lime formation taken in by the latest trio of completions show an aggregate of about 60 feet that will yield oil production. Estimates on the potential crude yield must be classed as highly speculative, as there are no other fields producing from the Paluxy in Texas to serve as a criterion. There are possibilities that the sand will not give up its oil content readily after "head" has been taken off the field, and that repressuring or flooding will be necessary.

The Paluxy is normally a productive fresh water sand when found in the north and west portions of the East Texas

basin. Water drive is conceded to be the source of the flowing energy at Talco. Separate water table for each sand section in the Paluxy is anticipated. Such a condition would permit the intermediate and lower sands to yield oil down dip from the faulted structure, although the upper sand yields water on the south flank.

The largest producers at Talco do not yield sufficient gas to fire boilers on drilling rigs. Temperature of the oil rises above 100°F. when wells are produced through open casing. Similar condition prevails in Woodbine sand areas, so operators are inclined to disregard the high temperature omen.

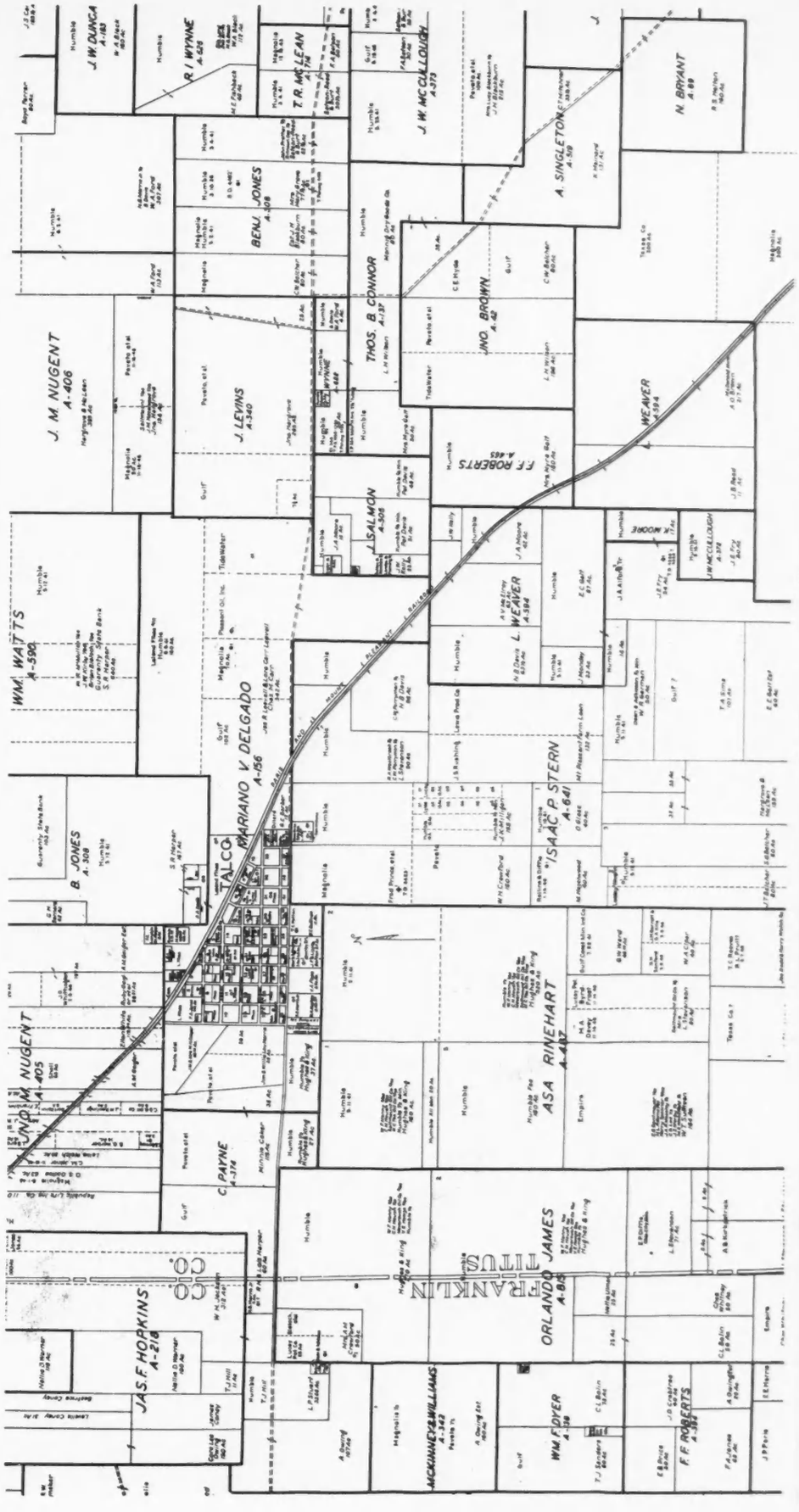
Equipment and surface connections will be of the low pressure type. Closed-in pressure of the most productive wells amounts to only 230 pounds.

The Talco field and other known faulted structures fairly accurately outlined by Woodbine sand failures in eastern Franklin, Hopkins, Hunt and Kaufman Counties are recognized as potential sources of oil and gas production from the upper and lower section of the Glen Rose member of the Trinity. The latter is the source of prolific production along the Rodessa fault, and affords a large gas yield with distillate from a single exploratory test drilled on top of the Cayuga field, while it also produces gas at Mexia. Until eliminated at Talco, these lower Trinity zones will be given serious consideration as being potential sources of high-gravity oil production.

FIELD WIDENED
Second Franklin County well flows

Tyler, Texas.—Length of the Talco field was broadened to 4½ miles by completion of Lucey Petroleum Company et al's W. N. Crawford 1, second producer for the Franklin County sector, flowing 104 barrels of 24.5 gravity oil through open 7-inch casing from Paluxy zone at 4121-4297 feet. It cored and drilled to a sub-sea depth of 3926 feet, with approximately 60 feet of sand and sandy-lime section carrying oil saturation. Crawford 1 is located on 25-acre lease, situated in the northwest corner of the O. James Survey, and is about 1900 feet northwest of a flowing producer owned by Humble Oil & Refining Company.

This gives the field 5 producers, and operations are underway on 6 tests. Rotary rig used on Crawford 1 has been skidded to the southwest corner of the property to proceed with the drilling of a second well. Byrd & Frost, Inc., owns one-half interest in the Crawford lease, and the C. & G. Oil Company holds one-quarter working interest. The remaining ownership is divided equally between Lucey Petroleum Company and Ralph E. Fair, Inc.. The same ratio of ownership prevails on a number of other leases and small tracts held by the group. Having approved an active drilling program, these independents have installed a 4-inch crude gathering system that ties into a 10-car rack on the



The Talco field, with low gravity oil coming from the Paluxy sand series topped near the 4200-foot level, is heading into an active drilling program. Five completions have established flowing production for a distance of 4½ miles parallel with the Mexia fault zone. (Map courtesy Zingery Oil Map Company, Fort Worth.)

Paris & Mount Pleasant Railroad, near Talco, and will attempt to market their production through the Independent Crude Oil Trading Company, Dallas. Ownership of the latter is divided proportionately among the group. Car racks have also been installed and pressed into service by Pleasant Oil, Inc., owner of the discovery well, and Humble Oil & Refining Company.

Nominal fishing job was experienced by Magnolia Petroleum Company in attempting to drill in its C. M. Carr 1, west offset to the discovery well, with cable tools. Company-owned rotary was used in drilling to 4151 feet, where 7-inch pipe was cemented in the Frederickburg shale overlying the Paluxy. Carr 1 logged only 27 feet of Georgetown lime, topped at 3952 feet, with an elevation of 371 feet. This unusually thin section of lime was due to the test having cut through the fault plane from the downthrow to the upthrow side. Operations have been started by Tide Water Oil Company on C. M. Carr 1, situated on the west side of the discovery lease, which has 23 approved locations scheduled to be drilled.

Haynes B. Ownby Drilling Company's Joe Easterling-Jones 1, C Lot 6, Block 16, central east portion of the Talco townsite, has progressed beyond the 2700-foot level. Extent of participation by the owners of 38 drilling permits within the townsite in the Paluxy production will be made known by the completion of the above test. It is situated close to the north deadline for production. A line projected from Magnolia Petroleum Company's Carr 1 and a short distance north of Lucey Petroleum Company et al's Crawford 1 will establish the north line of production, unless the fault plane occupies an irregular path. Nemo Oil Company et al's Talco Independent School Lot 1, 5-acre tract adjoining the southeast corner of the townsite, is definitely within the producing area, having logged top of Georgetown lime at 3447 feet, with an elevation of 372 feet. Drilling was underway below 3700 feet.

The only important outpost test starting is Jule Alford et al's J. E. Fry 2, NEc of 27.43-acre lease, Isaac P. Stern Survey, about 8000 feet south by east of the discovery well. It is 1100 feet north by east of Fry 1, which was junked near the 4220-foot level and above the Paluxy. The latter logged top of Georgetown lime at 3550 feet, with an elevation of 319 feet, and comparatively low on structure.

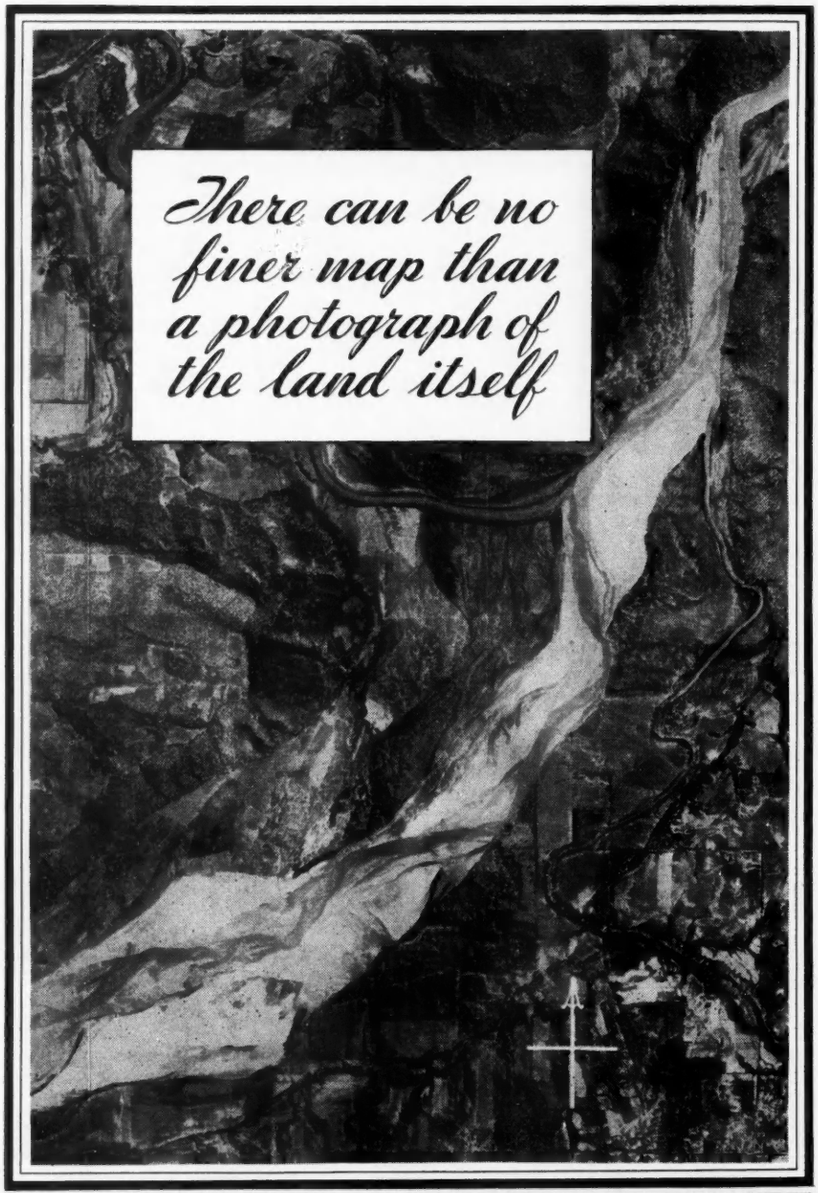
Dean Brothers and Albert Adkisson have contracted with the Red Irion Drilling Company, Gladewater, to drill and equip 6 tests on as many separate small sites within and near the townsite.

The first of a number of projected Trinity tests along the Mexia fault zone to the west and southwest of Talco is to be drilled in the northeast corner of Kaufman County near a bevy of Woodbine sand failures. Colton and R. P. Lester, Okmulgee, Oklahoma, awarded a 6000-foot contract to the Clark-Cowden Drilling Corporation to drill Barrow 1, center of northeast 40-acres of the J. D. Taylor Survey. Derrick was erected last week, and drilling will proceed promptly.

Pure Oil Company's W. H. Faulkner 1, 8500-foot test for the Trinity on the Mount Enterprise faulted structure in Eastern Rusk County, was drilling in hard limestone at 5615 feet. A 5-foot section of anhydrite was logged at 5320 feet.

Production test given C. F. Lytle et al's Thompson 1-T, situated on the west flank of the Mexia field, from Travis Peak section of the Basal Trinity showed hot salt water with a nominal volume of gas. Depth of this well has been corrected to 6065 feet, with 7-inch pipe cemented at 6002 feet. Fresh crude was used for circulation in drilling out cement plugs, and was produced into tanks when the column of water rose in the hole. This gave rise to erroneous reports that a commercial producer had been completed. Owners plan to plug back and test the entire section of Trinity by stages, using gun to perforate the casing.

Exploration of the Woodbine sand zone on wildcat blocks in East Texas is virtually dormant, owing to the interest aroused over the deeper production possibilities.



EDGAR TOBIN AERIAL SURVEYS
SAN ANTONIO, TEXAS
Pershing 9141
HOUSTON, TEXAS
Fairfax 8191

EAST TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
Droppleman Drl. Co., A. Kelley 4 (64.26-ac)	1500	3708
Farrell & Co., W. W. Hammett 4 (100-ac)	25	3664
Gilcrease Oil Co., Bradford 7 (40-ac)	2000	3660
Gulf, Jack Wiley 11 (100-ac)	7000	3694
Harry Hanbury et al, Geo. Curbo 1-B (40-ac)	160	3640
J. H. Sharp-Marathon 1-A (104-ac)	2000	3703
Humble, M. Kangerga 54-A (333¼-ac)	4500	3699
M. Kangerga 55-A (333¼-ac)	4500	3656

Company, Well and Location	Init. Prod. Bbls.	Depth
Alex McCutchin et al, Rutledge-McKinney 2 (7.38-ac)	3200	3704
Marathon, H. C. & G. W. Burton 28 (254.44-ac)	4000	3668
Alex McCutchin et al, Geo. Thompson 5 (18.44-ac)	2500	3700
Royal Pet. Corp., Wooley 5 (40-ac).	40	3612
Jim McMurray et al, H. C. Dickerson 1	2000	3668
Sells Pet., Inc., Geo. Moore 2 (10-ac)	4000	3816
Pet. Marketing Corp., Graham-Marathon 3-A (37.21-ac)	*	3680
Sinclair Prairie, Mayfield 65-A (374.74-ac)	4200	3853
Mayfield 66-A (374.74-ac)	4300	3794
A. L. Slaughter & Kugle, Frederick 5 (11.34-ac)	480	3600
Sun, M. Burns 6 (109.98-ac)	700	3750
H. A. Pace 33-B (637.45-ac)	300	3767
Tarpon Pet. Co., C. Young 2	1500	3700
Texas Canadian Oil Corp., Joel Blackwell 1 (38.33-ac)	*	3830
Westexas Oil & Roy. Co., J. Talley 4 (9.82-ac)	700	3600
KILGORE AREA—		
Adams & Lyles (was E. & F. Oil Co.), Williams 2 (8-ac)	3600	3607
Perry Allen et al, Dickerson 2 (31.7-ac)	80	3660
J. G. Beard et al, Elder 10 (72.16-ac)	600	3525
Bowles Oil Co., D. Wells 18 (100-ac)	4200	3696
M. T. Flanagan et al, Walker-Tidal 7 (9.13-ac)	5500	3594
Gulf, W. Holt 27 (185.12-ac)	4500	3636
Humble, S. S. Laird 76-B (568.53-ac).	1500	3580
Hunter & Rowe, C. L. Still 4 (91.57-ac)	95	3572
Hurtle Oil Co., H. Sexton 5-B (102-ac)	200	3640
H. Sexton 18-B (102-ac)	120	3601
Kinso Oil Co., C. Wells 6 (25.4-ac).	1500	3657
T. W. Lee & Williams, Carter 3-A (64-ac)	750	3590
Magnolia, M. Mayfield 2 (19.2-ac)..	240	3635
Royal Pet. Corp., F. A. Taylor 3 (40-ac)	80	3589
Rudco Oil Co., Sexton-Vaughn 4 (20-ac)	700	3642
Shell, W. P. Moore 18 (140-ac)	6500	3696
Sinclair Prairie, King 44-B, Tr 1 (337.6-ac)	8800	3500
King 24-B, Tr 5 (147-ac)	8000	3475
V. I. Sladek et al, R. A. Motley 1 (37½-ac)	100	3769
Sun, A. G. Morton 22 (336 24-ac)	3000	3518
Tide Water, H. P. Leverett 17 (109.44-ac)	7000	3655
T. W. M. Oil Co., Sabine River 4, Tr. 1 (70-ac)	1000	3584
LONGVIEW AREA—		
Alger Oil Co., T. Wells 11 (51.4-ac).	750	3708
Arkansas F. O. Co., V. Calvin 15 (65.22-ac)	8400	3553
McKinley 17-A (96.76-ac)	8000	3627
Grisham-Hunter Corp., T&P Ry. Co. 5 (10-ac)	3000	3591
Gulf, W. A. Ray 14 (813.73-ac)	1000	3589
Bobby Manziel et al, C. J. Mackey 5-A (59½-ac)	1000	3758
Joe A. Papadakis et al, Cone-Williams 1 (50-ac)	1500	3734
P. H. Pewitt et al, O. J. Phillips 2 (119-ac)	1000	3743
Red Iron Drl. Co.-F. R. Swain, A. S. Victory 1 (20-ac)	15	3688
P. F. Rutledge-C. W. Boller, P. Todd 4 (155-ac)	1000	3744
P. Todd 9 (155-ac)	900	3731
Stanolind, Geo. E. Fenton 14 (93.24-ac)	2500	3630
S. G. & M. Smith 9-A (60.15-ac).	6500	3582
Stanolind-Tide Water, H. Key 14 (83¾-ac)	9000	3613
M. Lemaire 6 (38.76-ac)	8300	3632
ANDERSON COUNTY, (Cayuga Field)—		
Cortex Pet. Co., J. W. Barton 1 (29.89-ac)	2000	4089
FRANKLIN COUNTY (Talco Field)—		
Lucey Pet. Co. et al, W. N. Crawford 1 (25-ac)	2400	4297
VAN ZANDT COUNTY, (Van Field)—		
Pure Oil Co., Sam Allen 3 (30.6-ac)	600	2935
H. C. Gilbert 5 (62-ac)	11,000	2964
J. R. Shivers 5 (46-ac)	10,000	2931
HENDERSON COUNTY—		
H. M. Wilson et al, fee 1	*	2800
KAUFMAN COUNTY—		
C. C. Pearson et al (was Murray-Emerson), G. W. Martin 1	*	2200
MORRIS COUNTY—		
Raycotuck, Inc., P. M. Staggers 3..	*	4566
Steve J. Rotondi et al, Smith Bros 1	*	4105
NAVARRO COUNTY—		
Wm. A. Reiter et al, T. W. Bounds 2	*	3465

*Failures; †Junked; ¶Million cu. ft. gas.

Calhoun County

OCCUPIES LIMELIGHT OF CORPUS CHRISTI AREA

WEEKLY STAFF REPORT

Corpus Christi.—Lead by a new discovery in Calhoun County, South Texas Gulf Coast continued its boom-like drilling campaign. This particular sector's wildcatting successes are attracting much attention and work is showing a further increase.

Humble Oil & Refining Company and Plymouth Oil Company's R. H. Welder 2, two miles north of Heyser and in the Green Lake area of Calhoun County, flowed 157 barrels on a 24-hour test through 7/64-inch choke showing a pressure of 1390 pounds on tubing and 2125 pounds on casing. The oil is 33.8 gravity and the oil/gas ratio is 1500 to 1. The well, located in the J. M. Rio survey, was drilled to 5474 feet, casing set on bottom, and perforated at 5465-70 feet.

Welder 2 is the third well drilled jointly by these companies on this geophysical prospect. They have announced no plans for the prospect, which they control almost entirely.

The Tomoconnor play of Refugio County continues to add new producers, the most recent being in the north extension. This 5800-foot Frio sand area is one of the most prolific on the South Texas Gulf Coast.

In San Patricio County, three miles west of Plymouth field, Benedum and Trees' E. H. Welder 2 was making a drill stem test late in the week at 6113 feet in sidetracked hole.

Plymouth field provided its usual list of producers from the 5600-foot Frio sand.

A great deal of interest is centered around Clara Driscoll field of Nueces County. O. W. Killam's Ellich 1, nearly a mile south of the discovery well, is coring near 4000 feet after setting casing at 3882 feet. It failed to encounter the producing sand, although it did find a number of shallower gas sands. It will plug back and complete as a gasser if the lower sands fail to produce.

In Saxet area, work centers around the 5800-foot Frio sand which now appears to be a blanket proposition. This new lens is located on the west side of the field and a new wildcatting campaign is being commenced in effort to widen production. One new well was added in the center of the producing zone, but its importance is such that it indicates that this is a rather prolific area.

Bentonville field, on the Jim Wells-Nueces County line, has only one producer, but a rather heavy drilling campaign has been commenced. Three companies are working in the field and several outpost locations are reported to be in the offing.

DEEP PRODUCTIONS

Mission.—The deepest production in South Texas is in prospect with the Union Sulphur Company testing just above 7700 feet through perforations in American et al 8, in the Mercedes district of Hidalgo County. The well drilled to 7822 feet, set casing and perforated above this level.

The regular producing level of this field is 7500 feet, where several wells have been completed.

North of this area, but still in Hidalgo County, Quintana Petroleum Corporation is rebuilding derrick to deepen J. C. Engelman 1 from 8904 feet. It will be carried below 9000 feet, set casing and perforated opposite upper showings.

ANOTHER HEYSER LINE

Humble will build from new field to Placedo

San Antonio.—A second pipe line project for the Placedo field, Victoria County, is in prospect following the unofficial announcement of Humble Pipe Line Company's plans for construction of a 20-mile extension to its Harbor Island line. The line will be extended from its present terminus in the Tomoconnor field, Refugio County, to Heyser, in Calhoun County. From that point, it is reported that the company plans to extend the line about six miles to tie into production in Placedo field, Victoria County.

Last week, Apex Construction Company began construction on two three-inch lines from Placedo field to Port Lavaca. The line, some 13 miles long, is being constructed for Barnsdall Pipe Line Company.

The new project by the Humble Pipe Line Company is the result of a strike by the Humble Oil & Refining Company and Plymouth Oil Company in a deep test on the Pat Welder land near Heyser and Green Lake in Calhoun County.

Details of the project have not been announced, although it is considered certain to be either a six or eight-inch welded proposition, probably with a pump station at Placedo or Heyser.

SOUTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BASTROP COUNTY—		
Marts & Beavens, Parkford & Jenkins 1, in center of lot 24, Bastrop town tract	*	650
CALDWELL COUNTY—		
Ogden & Reed Oil Co., Mamie Barber et al 1, 150 ft sl & wl of tr, Squire Damon sur	160	2004
CALHOUN COUNTY—		
Humble & Plymouth Oil Co., Patrick H. Welder 2, 2640 ft nwl & nel of 1937.6-ac lse, J. M. Rios sur, opens new field, perf 5465-70	1000	5474
DUVAL COUNTY—		
Atlantic Oil Co., J. F. Welder Heirs 6D, sur 113 (Seven Sisters)	500	2492
J. F. Welder Heirs 10D, sur 113 (Seven Sisters)	125	2206
J. F. Welder Heirs 12D, sur 113 (Seven Sisters)	312	2488
Bridwell Oil Co., Hubberd 3A, sur 71 (Loma Novia)	243	2708
Wm. Hubberd 9C, sur 75 (Loma Novia)	240	2565
Wm. Hubberd 16C, sur 75 (Loma Novia)	576	2570
Al Buchanan & Blanco Oil Co., J. F. Welder Heirs 3-B, sur 591 (Seven Sisters)	375	2525
Rodney Delange, Duvon 4, sur 76 (Loma Novia)	445	2726
Duval Oil Corp., W. K. Hoffman 1, sur 118 (Hoffman)	432	2885
L. B. Moody, 14B, sur 60 (Loma Novia)	80	2550
Highland Oil Co., M. C. Hubberd 11, sur 72 (Loma Novia)	400	2772
Wm. Hubberd 10, sur 75 (Loma Novia)	346	2607
Humble, DCRC 2B, sur 95 (Piedre Lumbre)	¶10	2129
M. C. Hubberd 35B, sur 72 (Loma Novia)	475	2720
M. C. Hubberd 60B, sur 72 (Loma Novia)	100	2764
R. Serna, Jr., 16A, sur 384 (Seven Sisters)	795	2502
R. Serna, Jr., 9B, sur 384 (Seven Sisters)	768	2499
Kaffie Lumber Co., M. H. Davidson 1, sur 114 (Loma Novia)	100	2564
Magnolia Pet. Co., C. W. Hahl 33, sur 67 (Loma Novia)	575	2615
C. W. Hahl 34, sur 67 (Loma Novia)	405	2640
Marzo Oil Co., E. R. Hagist 3, 1980 ft nl, 570 ft wl of sur No. 269	*	2171
Reynosa Oil Co., Mary Davidson 3A, sur 114 (Loma Novia)	288	2588
Rosan Oil Co., M. C. Hubberd 14, sur 84 (Loma Novia)	780	2832
Santa Clara Oil Co., J. F. Welder Heirs 2B, sur 383 (Seven Sisters)	650	2483½
J. F. Welder Heirs 10D, sur 383 (Seven Sisters)	700	2441
Shell Pet. Corp., Bishop Cattle Co. 1, sur 59 (Loma Novia)	250	2563
M. C. Hubberd 32, sur 77 (Loma Novia)	1300	2752
J. F. Welder Heirs 7A, sur 385 (Seven Sisters)	345	2468
J. F. Welder Heirs 1, sur 103 (Loma Vista)	†	2345
Smith & Hamill, M. C. Hubberd 33, sur 77 (Loma Novia)	864	2641
The Texas Co., Bishop Cattle Co. 14, sur 59 (Loma Novia)	150	2548
DCRC 17, sur 100 (Piedre Lumbre)	430	1975
Hugo Wendt 36, sur 68 (Loma Novia)	430	2806
Hugo Wendt 38, (Loma Novia)	400	2616
Hugo Wendt 39, sur 68 (Loma Novia)	430	2680
Valley Osage Oil Co., Wm. Hubberd 6, sur 75 (Loma Novia)	430	2603
Westheimer & Daube, Z. Campos 10, sur 224 (Seven Sisters)	425	2230
GOLIAD COUNTY—		
Jane Oil Co., 2-A Welden & Lackey, Gomez sur (N. Pettus)	266	3686
Magnolia Pet Co.'s Welden & Lackey 1, J. Gomez sur (N. Pettus)	255	3690
H. H. Weinert, Inc., Welden & Lackey 2, J. Gomez sur (N. Pettus)	265	3686
HIDALGO COUNTY—		
Weekley Oil Corp., L. B. George 1, sh 13, porc 41 (Samfordyce)	180	2775
JIM HOGG COUNTY—		
S. L. Miller Oil Co., Yeager 2, 777 ft sl, 150 ft el of blk 6, sur 20	*	3554
KERR COUNTY—		
Eastland Oil Co., Jeff Love 7, 1100 ft westerly wl, 990 ft sl of J. Martinez sur, sec 1594	*	2432
LIVE OAK COUNTY—		
Houston Oil Co., Mrs. C. L. Cartwright 34, Francis Botello sur No. 3 (Mount Lucas)	†	437
NUECES COUNTY—		
Capitol Oils, Inc., Lula Ayers et al 1, Webb tract (Saxet Heights)	400	4084
Aaron Cohen's Fee 1, Webb tr (Saxet Heights)	75	4086
Conroe Drlg. Co., Mary McBride 4 (Saxet Heights)	385	4100
J. K. Culton, H. B. Baldwin 6, blk 20, Russell Farm lots (Saxet Heights)	*	1300
Erin Oil Co. & Lee Bros. Oil, Nut Club et al 1, blk 1, Ellendale Gardens Nos. 2 & 3 (Saxet Heights) (pb 3700, sd/tr td 4096)	¶20	4090
Tom Graham's Peter Kaiser 1, Villareal Gr. (Saxet Heights)	340	4081
Tom Graham & Republic's Whelan 1, Villareal sur (Saxet Heights) perf 4058-60	¶20	5254
D. H. Hawn's Thomason & Linkenhoger 1 (Saxet Heights)	480	4075
La Jita Oil Corp.'s R. King 2, 660 ft nl & wl of sec 24, King Ranch subd.	*	6003
Port O. & G. Co., Country Club Place 1, lot 20, Villareal grant (Saxet Heights)	400	4085
Renwar Oil Corp.'s Rand Morgan 1, G. C. & S. F. sur 315 (Saxet)	1200	4425
Richardson et al's J. B. Sedwick 3, H. L. Kinney Lands (Saxet)	400	4557
Southern Minerals, T. H. Isensee 4, C. Land sur 404 (Saxet)	1408	4404
Mrs. M. B. Masten 1, G. Frank sur No. 416 (Saxet)	880	5824
Taylor Refining Co., W. A. Saunders 3, Villareal Gr. (Saxet Heights)	272	4081
REFUGIO COUNTY—		
Quintana Pet. Corp., 1-C Tom O'Connor, Carr & Connel sur (N. Tomoconnor)	1966	5900
United Prod. Co., M. F. Lambert 24, Hardwick sur (Greta)	1070	5926
SAN PATRICIO COUNTY—		
Plymouth Oil Co., E. H. Welder 45C, sec 49, Welder Ranch subd (Plymouth)	1072	5640
Texon Drlg. Co., R. L. Rambo 1, 380 ft wl, 466 ft nl of lot 6, sec 35, fourth addition of Taft farm lands	350	5653
STARR COUNTY—		
Barnsdall & Phillips, Yturria L & L.S. Co. 10, porc 100, Camargo Juris (Samfordyce) perf 2799-2807	300	2811
H. L. Currie, Y. G. Garcia 1, 1113 ft sl, 1660 ft el of sh 7B, porc 71 of 3382.42-ac tr	*	860
Ed Leach's Wood Estate 1, 2100 ft n Rio Grande & 1144 ft e of wl of porc 84	*	2740
Skelly Oil Corp., Seabury et al 12, tr 256, porc 38, Reynosa Juris (Samfordyce)	100	2807
VICTORIA COUNTY—		
American Liberty Oil Co., Machalec 4, Manchola sur (Coleto Creek)	*	2953
Harrison & Abercrombie's Sturdevant 1, Brownson sur, ab-382	800	4764
WEBB COUNTY—		
Mills Bennett's F. L. Garcia 4, sh 5A, sur 112 (Lopez)	645	2216
F. L. Garcia 8, sh 5A, sur 112 (Lopez)	700	2211
F. L. Garcia 9, sec 112 (Lopez)	645	2209
A. Montemayor 9, sur 114 (Lopez)	650	2206
The Hunter Co., A. S. Billings 1A, sur 113 (Lopez)	¶3	2220
Magnolia Pet. Co., S. Benavides, blk 428, Hale subd, Arispe gr (Cole)	75	2906
S. Benavides 9B, blk 391, Hale subd, Arispe gr (Cole)	625	2834
WILLIAMSON COUNTY—		
H. F. Goff, Charles Patschke 1, 325 ft sl, 1270 ft wl of 100-ac tr in Foley sur	*	1227
Lemmon & Fuchs, Ryals 1, 766 ft swl along nwl fr ne/cor & 466 ft se of nwl of R. W. Ryals 102-ac tr in J. West sur	*	850
Taylor Ref. Co., Anne Lange 3, H. White sur (Byersville)	*	970
ZAPATA COUNTY—		
Clover O. & G. Co., Alice P. Haynes 13, blk 7, Haynes subd, Comitas & Villa grants (Comitas)	30	856

*Failures; †Junked; ¶Million cu. ft. gas.

TEXAS PERMITS

Austin, Texas.—Permits for the drilling of 439 new wells in Texas were allowed by the Railroad Commission last week.

North Texas operators filed 76 permits, which included 43 in Young County and 25 in Archer County. In West Central Texas there were 17 new locations.

A marked increase in activities in East Central Texas resulted in the filing of 74 new locations. There were 41 in Titus County, 20 in Cass County, and nine in Anderson County. East Texas reported 73 new permits with 41 in Gregg County, 22 in Rusk County, four in Upshur County, and six in Smith County.

In the Gulf Coast there were 65 permits with 15 in Nueces County, 11 in Harris County, and nine in Chambers County. Southwest Texas operators reported 60 new wells of which 29 are to be drilled in Duval County. West Texas operators filed 55 locations with 18 in Winkler County and 10 in Ward County.

TEXAS GULF COAST

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANAHUAC—		
Humble, Johnson 3	840	7047
Middleton 16	720	7085
Zappe 4	552	7082
Sun, White 13	632	7084
White 14	662	7087
BARBERS HILL—		
Sun, Wilburn 15 (wo)	466	5499
Texas Gulf Prod. Co., Kirby B-23 (wo)	372	4650
BLUE RIDGE—		
D. M. Wallace, Blakley 2	325	3911
CLAY CREEK—		
Pompykal et al, Platte 2 (wo)	*	2304
CONROE—		
Gene Fosdick, J. L. Pitts 1	*	5265
Humble, So. Tex. Dev. Co. A-79	1920	5132
A. U. Morrison, Ben H. Powell 1	135	5016
Sun, Foster 26	11	5152
DAMON MOUND—		
Henry Wisdom, Fee 4	30	1625
DICKINSON—		
Humble, Maco Stewart B-7	768	8025
Townes 3	¶2 243	8045
GOOSE CREEK—		
Gulf, State Land Oil Co. 31 (wo)	85	2883
HASTINGS—		
Stanolind, Williams 4	609	6080
LOUISE—		
Pure Oil Co., W. McIntyre 4	150	5155
MANVEL—		
Texas Co., Belcher B-22	*	5426
MARKHAM—		
Hamil & Hamil, Poor Boy Smith 3	*	3903
ORCHARD—		
Gulf, Moore 44	20	3600
SOUTH HOUSTON—		
Smith & McDannald, Phillips 1	150	4785
Stanolind, Grant 1	*	lcn.
Schwarz 1	303	4775
TOMBALL—		
Humble, Laird 2	600	5558
TURTLE BAY—		
Stanolind, Middleton 2	168	6609
CHAMBERS COUNTY—		
Glenn H. McCarthy, Pitt 1, Winnie prospect, J. M. Duran sur	*	8006
COLORADO COUNTY—		
Terminal Oil Co., Gillis 1	*	4396
GALVESTON COUNTY—		
Sun, Hughes 1, Green Lake prospect, W. C. M. Baker sur	*	9636
ORANGE COUNTY—		
Texas Canadian Oil Corp., Bland 1, n of Orange field, J. Dyson sur	*	7550
Blue Line Oil Co., Peet 1, n of Orange, R. Ballew sur	*	2695
WASHINGTON COUNTY—		
W. D. Twichell et al, Hoxie 1, S. Clampit sur	*	1500

*Failures; †Junked; ¶Million cu. ft. gas.

Fairbanks-Satsuma

PROSPECT LOOMS AS NEW HARRIS COUNTY FIELD

WEEKLY STAFF REPORT

Houston.—Possibilities of a new oil pool in Harris County were found May 18 in Amerada-Stanolind's Dopsalus 1 on Fairbanks-Satsuma prospect when it made 60 feet of 47 gravity oil with a 420-pound pressure on a five-minute drill stem test from 6788 to 6826 feet in the Cockfield formation. May 22 the crew was preparing to take another core at 6994 feet in sand and shale with streaks of sand prior to running a string of seven-inch casing and testing for production.

Dopsalus 1 is approximately 50 feet higher than Hill & Hill's C. R. Wharton 1, which had salt water sands from 6855 to 6885 feet. Hill & Hill set seven-inch casing at 7049 feet, perforated from 7034 to 7048 feet, and swabbed salt water. The well is 1280 feet from the north line and 330 feet from the east line of a 177-acre tract in W. C. R. R. Survey, Section 2. It topped the Hockleyensis at 5700 feet and the Cockfield at 6540 feet.

Satsuma prospect originally was a torsion balance prospect of Humble Oil & Refining Company, which worked the area in 1928. Gulf Oil Corporation is reported to have received a reaction with torsion balance. The block was taken by Ralph Johnson in June, 1934, a portion of 12 surveys being included in the 8000-acre block. The block was extended to the old W. B. Hamilton block, where a test was drilled which lost the hole before reaching the contract depth. Amerada-Stanolind are reported to have spent $150,000 on the block.

Atlantic & Brace's E. Hardy 1, 3660 feet north of the discovery well of Hardin field, Liberty County, was plugged back to 7438 feet to test sand in the Cockfield from 7440 to 7444 feet. During the past week the operators perforated casing from 7696 to 7706 feet. On a drill stem test the well showed 5500 feet of salt water with a 60-pound pressure. The test was made through a quarter-inch choke on top and bottom. Hardy 1 is in the J. Robeson Survey.

Tide Water Oil Company's Corbitt 1, Splendora, J. Backman Survey, Montgomery County, was drilling in shale at the end of the week at 5770 feet after topping the Hockleyensis at 4985 feet. It is reported running over 100 feet lower than other wells drilled in that area. The operators will start coring for the Cockfield soon.

Humble Oil & Refining Company's Pinchback 1, 1155 feet west of the discovery well at Amelia, C. Williams Survey, Jefferson County, was killed during the past week because the gas/oil ratio was too high. The well was completed at 6768 feet after topping an oil sand at 6756 feet and setting seven-inch casing at 6760 feet. The well came in May 19 making 2,160,000 cubic feet of gas daily along with 288 barrels of oil through a quarter-inch choke. Tubing pressure was 2200 pounds; casing pressure was 2400 pounds.

H. J. De Armand has made location for State National Bank 1 northeast of Amelia field. It is 587 feet from the north and south lines, and 230 feet from the east and west lines of a 12.5-acre tract in the E. Bigner Survey.

Humble Oil & Refining Company completed two new producers in Dickinson field, Galveston County, last week. Townes 3, on the east flank of the field, J. S. Jones Survey, was completed at 8045 feet for 243 barrels of oil and two million cubic feet of gas daily through a quarter-inch choke. Tubing pressure was 2250 pounds; casing pressure was 1800 pounds. The oil tested 39.9 gravity. The gas/oil ratio was 9600 to 1. The operators may kill the well and work it over due to the high gas/oil ratio. Townes 3 set seven-inch casing at 7984 feet.

Maco Stewart B-7 at Dickinson was finaled at 8035 feet in oil sand. The test made 32 barrels of 37.2 gravity oil per hour through a quarter-inch choke. Tubing pressure was 1300 pounds; casing pressure was 1200 pounds. Seven-inch casing was set at 8014 feet.

Anahuac Active

Humble Oil & Refining Company's Johnson 3, on the northeast flank of Anahuac field, Chambers County, was completed May 21, making five barrels per hour from Marginulina formation after drilling to 7128 feet and failing to pick up the Frio sand. The hole was plugged back and seven-inch casing cemented at 7024 feet. Two and one-half inch tubing was hung at 6913 feet. The well came in through a quarter-inch choke with a tubing pressure of 250 pounds. The same operator's Middleton 16, H. & T. C. Survey, Section 58, was completed at 7085 feet in the regular Anahuac pay for 30 barrels per hour through a quarter-inch choke with a tubing pressure of 1175 pounds.

Humble Oil & Refining Company's Zappe 4 was completed at 7088 feet for 23 barrels per hour through a quarter-inch choke.

Sun Oil Company completed White 13 at 7084 feet. The test made 632 barrels daily through a quarter-inch choke with a tubing pressure of 1200 pounds; casing pressure was 2200 pounds. The well is in the J. McGehey Survey.

On the east flank of Anahuac, Humble Oil & Refining Company's Hebert Broussard 5, H. & T. C. Survey, Section 59, found the Frio sand dry at 7150 feet. The top of the sand was found at 7120 feet. The hole was plugged back to 6799 feet. On the north flank of the field, Humble's White 10, was waiting on cement to set at 7064 feet after setting seven-inch casing at that depth. The hole is bottomed in oil sand with the top of the pay found at 7043 feet.

Humble Oil & Refining Company made five new locations in the field: Grippon 5, H. & T. C. Survey, 466 feet south of the north line and 319 feet from the east line of Section 53; Grippon 5 is 466 feet east of the west line and 1325 feet north of the south line of lease in H. & T. C. Survey, Section 51; A. B. Shaver 1 is 466 feet south of the north line and 319 feet west of the east line in H. & T. C. Survey, Section 53; White 12 is 2821 feet north of the south line and 1635 feet west of the east line of lease in J. McGehey Survey; White 13 is 1299 feet north of the south line and 706 feet west of the east line of lease in J. McGehey Survey.

Stanolind Oil & Gas Company completed Middleton 2, M. A. Carrol Survey, Turtle Bay field, Chambers County, last week for 110 barrels in 16 hours through ten sixty-fourth-inch choke with a tubing pressure of 1260 pounds and a casing pressure of 1400 pounds. The hole was drilled to 6609 feet and had a sand showing oil from 6603 to 6609 feet. Seven-inch casing was set at 6603 feet.

Stanolind Oil & Gas Company completed another producer on the northwest flank of the South Houston field, Harris County, last week. Schwartz 1 was completed at 4775 feet after topping the broken sand at 4571 feet. The well came in for 303 barrels daily through a quarter-inch choke with a tubing pressure of 800 pounds and a casing pressure of 1850 pounds. Schwartz 1 topped the Marginulina at 4361 feet.

Smith & McDannald completed Phillips 1, South Houston field, it being the second producer for the operators. Phillips 1 was completed at 4785 feet for 150 barrels daily through a quarter-inch choke. Tubing pressure was 420 pounds; casing pressure was 375 pounds. Seven-inch casing was set at 4670 feet. Phillips 1 is in the South Houston Gardens Subdivision No. 6.

Midfield Prospect Test

Marathon Oil Company has made location on the Midfield prospect in Matagorda County. C. T. Kountz 1 is 660 feet from the north line and 660 feet from the east line of I. & G. N. Survey, Section 11. The Texas Company and Marathon Oil Company are the principal lease holders in the area. The former has approximately 4500 acres while the latter company has around 9500 acres. The prospect was worked with geophysical instruments by both companies.

South Louisiana

ACTIVE AS SIX WILDCATS REACH CRITICAL DEPTHS

Lake Charles.—Louisiana Gulf Coast jumped in to the spotlight during the week with the probable discovery of a new oil field in Allen Parish, with six important wildcats reaching critical depths and the announcement of a new wildcat location on the South Jennings prospect in Jefferson Davis Parish. The district had been rather dull for the past three weeks due to delayed drilling programs of several major oil companies.

Evidence of a new oil field was shown in Humble Oil & Refining Company's J. A. Bel 1 on the Reeves prospect, Allen Parish, May 17 when it blew out, caught fire, and cratered at 7770 feet in the Frio or Vicksburg formation.

While drilling at 7770 feet, pressure from a sand encountered at 7769 feet caused drilling mud and gas to start flowing over the derrick floor. After closing the blow-out preventors the flow started coming in from around the casing and the well started blowing wild. Friction within the hole caused Bel 1 to ignite. The hole cratered, and the rig and derrick were lost. After cratering the well blew for three hours. While it was burning there was evidence of crude oil due to the blackness of the smoke.

May 22, Bel 1 was spouting a column of gas and salt water over five feet in the air. Humble Oil & Refining Company have made location for Bel 2. It is 933 feet north and 933 feet east of Bel 1, Section 28-6s-7w.

Bel 1 was spudded in April 4, 1936, and set 20-inch conductor pipe at 198 feet. At 2120 feet a string of 13⅜-inch surface casing was set. The test topped the Discorbis at 5109 feet, Heterostegina at 5160 feet, Frio at 5813 feet. Bel 1 is located 466 feet north of the south line and 3106 feet west of the east line of Section 28-6s-7w.

Six Important Wildcats

Magnolia Petroleum Homeseekers 1, Esterwood prospect, Section 54-10s-1w, Acadia Parish, was coring in hard sand at 8066 feet at the end of the week and is reported running higher than normal. The test has encountered several dry sands. The same company's Hebert 1 at Big Lake, Section 13-12s-9w, Cameron Parish, was drilling in shale May 22 at 7295 feet. It cored a sand with a slight odor of oil from 5809 to 5815 feet.

On Hayes Prospect, Shell Petroleum Corporation's Lacassine 1, Section 20-11s-5w, Jefferson Davis Parish, after running a production string of seven-inch casing to 9523 feet was coring hard sand and shale at 9573 feet. Lacassine 1 has had several showings of oil but the sands all carried salt water. The crew will probably drill the test on down in search of deeper sands, and if no new sands are found the seven-inch casing will be perforated at an upper level. The hole, originally drilled to 9802 feet, was pluged back and sidetracked at 8127 feet. Lacassine 1 topped the Discorbis at 7953 feet, Oligocene Discorbis at 8868 feet, and the Heterostegina at 9612 feet.

On Shell Petroleum Corporation's Colonial Sugar 1 at the end of the week the operators were coring in shale with streaks of lime at 7161 feet. The wildcat has had sand and shale with shows of oil from 2700 feet to the bottom of the hole. The well is located on the Convent prospect, Section 5-12s-5e, St. Mary Parish.

Continental Oil Company's Hebert 1, Abbeville prospect, Section 20-12s-3e, Vermilion Parish, was coring in sandy shale at 7484 feet at the end of the week. Hebert 1 is reported to be running high for the area. The crew cored a sandy shale with a slight oil show with salt water from 7338 to 7350 feet.

On Cankton prospect, northeast of Bosco, Limited Oil Company's Miler Estate 1, Section 47-8s-4e, was drilling in shale at 8192 feet. The wildcat is running over 100 feet higher than other wells drilled in the vicinity. Discorbis was topped at 7394 feet.

Stanolind Oil & Gas Company, which has been remarkably successful in wildcat drilling in the Texas Gulf Coast, but which has no production in the Louisiana sector of the coast, soon will take its initial step toward developing production on South Jennings prospect in Jefferson Davis Parish.

On the strength of geophysical interpretations gathered from work done in 1934 and again in May, 1935, the company has decided to drill Calcasieu National Bank 1, 1320 feet east and 330 feet north of the SWc NW Section 15-10s-3w, on a block of acreage taken in Sections 3, 9, 15, 22 and 27 at a reported expense of $144,000.

Continental Oil Company's Fee 1, 1980 feet north of the discovery well of St. Martinville field, Section 18-11s-6e, St. Martin Parish, perforated seven-inch casing from 7710 to 7716 feet last showed no oil or gas while being swabbed. The hole will be plugged back and reperforated at a higher level. week and swabbed salt water. Fee 1 Fee 1 was drilled to 8150 feet and was found to be 10 degrees off vertical. The hole was reamed to 7818 feet and seven-inch casing set at 7791 feet.

The crew will probably perforate the casing from 7343 to 7367 feet, where sands showed from 26 to 12 ohms resistance on an electrical logging device. If this horizon fails to produce the well will be perforated from 7256 to 7314 feet, where from five to 12 ohms was shown.

Tide Water Oil Company's Smede 2, 660 feet south and west of the discovery well of St. Martinville field, was killed last week after blowing gas. A squeeze job was successful in shutting off the gas. Casing was perforated with 10 holes at 6752-56 feet, where a drill stem test showed three joints of oil and 12 joints of salt water. Pressure was 40 pounds. At the end of the week the operators had plugged back to 5500 feet to make another test.

In Tepetate field, Acadia Parish, Continental Oil Company completed P. O. Johnson 1 at 8317 feet after perforating 5¾-inch casing from 8310-15 feet with 11 holes. Johnson 1 came in flowing 425 barrels in 17 hours through a quarter-inch choke. Tubing pressure was 1100 pounds; casing pressure, 1150 pounds. The oil tested 33.9 gravity. Johnson 1 failed to top the regular gas sand and encountered the oil sand at 8392 feet. Five and three quarter-inch casing was set at the bottom.

Continental Oil Company was preparing to complete H. Breckenridge 1, Section 29-7s-2w, Tepetate field, at the end of the week. The hole was drilled to 8306 feet in oil sand, with the top of the saturated sand found at 8300 feet. Five and three quarter-inch casing was set at the bottom.

On the west side of Tepetate, General Crude Oil Company's Vincient 1, Section 31-7s-2w, was drilling in shale at 9152 feet. It will be carried down to 10,000 feet unless commercial oil is found at less depth.

Herton Oil Company's Carter 1, 1208 feet east of Roane 2, Jeanerette field, Section 38-13s-9e, St. Mary Parish, was drilling below 8900 feet at the end of the week in search of a new producing sand after having missed the regular producing horizon.

The same company's Banta 2, Section 40-13s-9e, Jeanerette field, was completed last week at 6655 feet in oil sand topped at 6630 feet. Seven-inch casing was cemented at 6643 feet. Banta 2 came in flowing 26 barrels per hour through a three eights-inch choke. Tubing pressure was 1440 pounds; casing pressure was 1500 pounds. The oil tested 36.6 gravity.

Union Sulphur Company's G. S. Cole 1, offset to Fohs Oil Company's Salt Dome (Frost) 1, which discovered oil in the graben between Gillis and English Bayou fields, Section 12-9s-8w, Calcasieu Parish, made a drill stem test from 5268 to 5276 feet last week of the shallow sand and showed dry gas with no pressure through two quarter-inch chokes.

On the northeast side of Gillis field, Union Sulphur Company's J. A. Bel 1, Section 6-9s-7w, was shut down waiting on orders at 7030 feet at the end of the week after showing 14 fourbles of salt water on a drill stem test made at 6977 feet.

SOUTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CAMERON MEADOWS—		
Magnolia, Cameron Meadows 16....	150	4242
IOWA—		
Shell, Zimmerman 1	*	5386
JEANERETTE—		
Herton Oil Co., Banta 2	624	6655
LEEVILLE—		
Texas Co., L. L. E. Leeville 45.....	1125	3333
ROANOKE—		
Shell, Kratzer 5	949	8681
SULPHUR—		
Union Sulphur, Fee 824	90	3917
TEPETATE—		
Continental Oil Co., Johnson 1.....	600	8317
VINTON—		
Wilson Broach Oil Co., Strip 19.....	*	4592
WHITE CASTLE—		
Shell, Watkins 31	447	5486
ALLEN PARISH—		
Humble, J. A. Bel 1, Reeves prospect, sec 28-6s-7w	*	7770

*Failures; †Junked; ¶Million cu. ft. gas.

Less Leasing

NORTH LOUISIANA INTEREST NOW SHOWING A DECLINE

WEEKLY STAFF REPORT

Shreveport.—Leasing in North Louisiana aside from that in the southeast trend from the recent Permian lime gas-oil well in Ouachita County, South Arkansas, has dropped preceptibly in the last fortnight. Bienville Parish is still the most active area in the North Louisiana Basin aside from the "trend" leasing mentioned.

In Bienville Parish, centering around Sections 15 and 22-19n-7w, Standard Oil Company of Louisiana, which recently assembled a block in township 18 north, range 6 west in the parish, has blocked approximately 6200 acres on a geophysical "high" which was said to have shown approximately 400 feet of closure. H. L. Hunt in the same general area has blocked 1500 acres. Gulf Oil Corporation continues to add to its block centering in Section 22-14n-7w, in the same parish, where a structure with a reported closure of 750 feet is reported to have been found.

Leasing still continues active around the flanks of the old Homer field, Claiborne Parish. Brann and Wright, said to represent a major company, recently secured over 9000 acres of leases around the flanks of this field and Gulf Oil Corporation continues adding to its holdings in township 21 north, range 7 west. Shell Petroleum Corporation has recently been taking leases in township 20 north, range 4 west. In DeSoto Parish, Magnolia Petroleum Company is taking scattered leases around Section 4-14n-12w.

In the southeast trend from the Permian lime well in Ouachita County, Arkansas, leasing activity still continues strong in Union Parish. Gulf Oil Corporation, O'Brien Brothers of Shreveport and H. L. Hunt are among those continuing to take acreage in townships 22 and 23 north, ranges 1 east and 1 west. Hunt now has approximately 5500 acres in that locality. Gulf Oil Corporation which has over 20,000 acres under lease in Winn Parish, recently added 900 acres more in township 10 north, range 2 west.

In Ouachita and Union Counties southeast from the Permian lime discovery well in Section 27-15-15, Eastern Texas Production Company is taking considerable acreage.

Work Continues in Texas Section

Heavy royalty trading and continued geophysical exploration continues along the southwest trend of the Rodessa Fault in Cass and Marion Counties, Texas. Seaboard Oil Corporation has a seismograph crew running a profile from Linden to Atlanta, Cass County. Sinclair Prairie Oil Company has a crew shooting near the Charles Ames Survey, and Atlantic Oil Producing Company's shooting crew last week was working one mile west of Jefferson while its torsion balance unit was five miles west of that town.

Flesh and Hootkins have taken a 35-acre lease in the Lizzie Henderson tract, R. Bennington Survey, Marion County, in which tract Ed Holman several months ago drilled a 4000-foot dry hole. They are reported to have paid $500 per acre to be paid from production.

Other East Texas border counties are also showing more leasing and geophysical activity. In Panola County, Shell Petroleum Corporation for several months has had a shooting crew at work and it is now working southeast of Carthage. Humble Oil & Refining Company has a geophysical crew in the southern part of Shelby County.

Taylor and Harris are building a small-type refinery at Haslam, Shelby County, to handle oil from the recently completed pumper of C. A. Parker and associates, Windham 1, A. H. English Survey, Shelby County.

Northeast of Shelbyville, Shelby County, Farley and Sommers are assembling a block for a 3500-foot test and R. I. Boyd has bought 500 acres scattered leases around H. A. Stebbinger and associates' Pickering Lumber Company 1, C. F. Henry Survey, Shelby County, which is arranging to deepen from 3900 feet.

59 PERMITS

South Louisiana ahead despite 14 at Rodessa

Shreveport.—Fifty-nine drilling permits were authorized last week by the minerals division, Louisiana Conservation Commission of which 27 were for North Louisiana divided among the following parishes: Bossier, 1; Caddo, 14, all in Rodessa; Catahoula, 1; DeSoto, 2; Grant, 1; Red River, 3; Sabine, 4; and Tensas, 1. The 32 in South Louisiana were divided among the following parishes: Acadia, 5; Calcasieu, 3; Iberia, 9; Jefferson, 4; La Fourche, 4; Plaquemines, 2; St. Mary, 3; and Terrebonne, 2.

Shreveport, La. — Nine producing wells were completed last week in the Rodessa district to bring the total of oil producers in that field to 178. There are 68 tests drilling in the field.

Although not officially gauged, Blackwell Oil & Gas Company's Neugent 1, SW NE SE 8-23n-15w, a northeast outpost well, one half mile west of Lion Oil Refining Company's John M. Wynn 1, NE SW 9-23n-15w, was completed as an oil well at 6107 feet. It is not included in the nine completions last week. Before 7-inch casing was cemented at 5916 feet, an electrical tester was run which showed saturated formation at 5919-27 feet in base of the Hill horizon and a gas horizon at 6023-31 feet and at 6055-65 feet. If the oil production is coming from the Hill sand it will be the first Hill sand oil producer in the field.

Although reports gained headway last week that Pelican Oil & Gasoline Company had cut back its 13 wells on the 120-acre Sexton lease to the regular field allowable of 350 barrels daily per well, a check revealed that at least 5 wells on the north edge of the lease were still running open. Production from the lease for the 24-hour period ending at 7 a.m., Thursday, May 21, was 10,754 barrels and for the preceding 24-hour period, 10,033 barrels. Eastern Texas Pipe Line Company ran 14,016 barrels from the lease during the 24-hour period ending Thursday morning. The highest 24-hour period was on Friday, May 15, when the production was 18,872 barrels.

On Saturday, May 16, the production was 16,820 barrels; Sunday, 17,579 barrels; and Monday, 15,082. It is estimated that while these wells were open full blast that the escaping gas from them per day was 150 million cubic feet, besides about half this amount being utilized at an extraction plant on the lease.

LOUISIANA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO PARISH (Rodessa)—		
Danciger O. & R. Co., Francis 1, 23-23n-16w	1000	6005
Neugent 1, 23-23n-16w	900	6015
O'Brien Bros., Rodessa 3, 14-23n-16w	3000	6010
Standard, Lawton 14, 14-23n-16w	3000	6013
United Gas, Maroun 1, 23-23n-16w	2000	6068
V. I. Miller 3, 14-23n-16w	2000	6008
Rodessa 18, 15-23n-16w	3000	5995
Rodessa 21, 15-23n-16w	2000	5998
CASS COUNTY (Rodessa)—		
American Liberty Oil Co., Maxie 2, Jno. Collum sur	1500	6045
CADDO PARISH (Pine Island)—		
C. G. Gibbons, Morgan 1, 15-21n-16w	*	1920
MOREHOUSE PARISH (Monroe)—		
J. E. Farrell, State 15, 28-21n-4e	¶53/4	2135
State 17, 9-21n-4e	¶10½	2135
SABINE PARISH (Converse)—		
Posey Sisters Oil Co., Looney 1, 30-9n-13w	20	1792
UNION PARISH (Monroe)—		
Carbons Consolidated, Bird 1, 27-22n-3e	¶1	2185

*Failures; †Junked; ¶Million cu. ft. gas.

LA FAYETTE FAILURE

Rodessa Fault Trend test stops at 5308 feet

WEEKLY STAFF REPORT

El Dorado, Ark.—Joe Modisett and associates' Frost Lumber Company 1, SW SW 21-19s-24w, La Fayette County, was abandoned last week as a dry hole at 6008 feet. It was the second hole drilled for this test, the first having been junked at

5316 feet and the derrick skidded 100 feet.

This test was thoroughly cored below 5314 feet and all formations carefully checked. The test logged top of the first anhydrite at 4930 feet and logged base of massive anhydrite at 5308 feet with base of last stringer at 5412 feet; elevation was 261 feet.

The well, 25 miles northeast of the Rodessa field, had been watched closely for possibilities that the Rodessa Fault trend might extend that far and that a structure carrying production might be present. The formations below the anhydrite were not clearly defined to correlate satisfactorily with the three gas producing horizons and the oil producing horizon at Rodessa.

ARKANSAS PERMITS

El Dorado, Ark.—Seven drilling permits were issued last week by the Arkansas Board of Conservation, three of them in Ouachita County, as the result of recent completion of a Permian lime gas-oil well. The permits by counties follows: Bradley County, Phillips Petroleum Company, C. H. Murphy 1, 660 feet south and east NWc NW 12-17-11; Calhoun County, Proetz & Brown, El Dorado, Calion Lumber Company 1, located 610 feet east and 300 feet north SWc SE SW 22-15-15; La-Fayette County, A. M. Neely, Shreveport, Louisiana, Meek 1, 330 feet south and west NEc NE NW 35-19-25; Miller County, Deep Rock Oil Company, Tulsa, Oklahoma, Williams 1, 330 feet south and 176 feet east NWc SW NW 6-16-25; Ouachita County, Standard Oil Company of Louisiana, Shreveport, J. D. Reynolds B-3, 660 feet north and 330 feet west SEc NW SW 27-15-15; Phillips Petroleum Company, Bartlesville, Oklahoma, E. Gette 1, 660 feet south and 330 feet west NEc N½ SE 28-15-15; and Lion Oil Refining Company, El Dorado, Arkansas, J. D. Reynolds 1, 534 feet north and 330 feet west SEc SE NE 28-15-15.

ARKANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
LA FAYETTE COUNTY—		
Joe Modisett et al, Frost Lbr. Co. 1, 21-19-24	*	6008
MILLER COUNTY—		
King Oil Corp., Crank 1, 19-16-25	*	4000
Mahon et al, Miller L&T Co. 1, 29-18-27	*	1902

*Failures; †Junked; ¶Million cu. ft. gas.

ALLOWABLE CUT
Mounting completions mean more reductions

WEEKLY STAFF REPORT

Hobbs, New Mexico.—Sharp decline in production allowable of all prorated wells in Lea County was imposed by the Oil Conservation Commission effective May 16 in order to absorb new completions without advancing the total yield for the state. Further cuts are inevitable as new field operations have exceeded completions for some weeks, and several of the major purchasers of this oil are protesting that current runs exceed demands.

Total allowable for the state was retained at the all-time high mark of 75,000 barrels daily on the mid-month proration schedule prepared by C. G. Staley, umpire, but the average allowable of prorated wells in Lea County was lowered from 111 to 107 barrels daily. Large number of completions now pending, and promise of state authorities to cooperate with the Oil States Compact group in restricting production will force New Mexico's prorated wells to an average of less than 100 barrels daily within another month. Lea County added 24 producers to its proration schedule during the fore part of May, including 8 marginal producers.

Current completion report for Lea County lists 16 producers and 2 failures. This is above the normal run of new wells. During the same period there were 13 new locations, including 8 for the Monument field, and 3 for the north end of the Eunice field. The others were assigned to the sandy-lime belt in the eastern portion of the county.

Sun Oil Company's W. W. Weatherly 1, C NE SW 17-21s-37e, extended the sandy-lime belt about 1½ miles to the northwest with flowing production after using 4000 gallons of acid solution at 3815 feet, or 329 feet below sea level. The well gauged 13½ barrels oil on third-hour open tubing test, and later dropped to 36 barrels daily. The Texas Company is starting operations on Eula L. Alexander 1, C Lot 3, 7-21s-37e, situated about 1½ miles northwest of the above completion.

Four wells are in process of completion as small producers in the South Eunice sandy-lime area. Continental Oil Company and California Company's E. M. Elliott 1-A-22, C SW SW 22-22s-37e, south offset to the discovery well, flowed 165 barrels oil in 24 hours through casing while fishing for two strings of tools lost at 3539 feet. N. G. Penrose and Rowan-Nichols Oil Company's Will Cary-Humble 2, C NE SW 22-22s-37e, a west offset to their original producer, gauged 60 barrels in 12 hours after landing tubing. The well is bottomed at 3577 feet, with an elevation of 3345 feet. Repollo Oil Company's O. J. Boyd 1, SW SW NW 23-22s-37e, five eights-mile east by north of the latter, was drilled to 3700 feet, or 363 feet sub-sea, and swabbed and flowed 45 barrels of oil in 15 hours. Sun Oil Company's A. D. Richards 1, C NE SE 6-23s-37e, southwest outpost location, failed to offer commercial production prior to 230-quart intro shot at 3635-3798 feet. Late report on swabbing operations rated the volume of fluid at 2½ barrels hourly, including 50 percent water. However, the water is decreasing, and a small producer is now assured. Gulf Oil Corporation has made location for F. C. King 1, C SW NW 5-23s-37e, offsetting production.

Closing Gap

Repollo Oil Company's W. C. Roach 1, NW NW NW 21-20s-37e, which recently contributed to the closing of the gap between the Eunice and Monument fields, logged additional oil saturated lime at 3836-3841 feet in deepening to 3847 feet, or 317 feet sub-sea. It will be carried to the projected water level and tested. This outpost gauged 110 barrels in five hours after using 5000 gallons of acid at 3830 feet. Gulf Oil Corporation's A. B. Reeves 1, C NW SW 29-20s-37e, also an intermediate test for the two areas, swabbed 27 barrels oil in 4 fours after deepening to 3856 feet, or 327 feet below sea level.

Devonian Oil Company has made location for State-Heasley 5, C Lot 4 and State-Heasley 6, C Lot 3, on the north line of 5-21s-36e, in the Eunice field. Humble Oil & Refining Company's State 1-D, C SE SW 31-20s-37e, is a north offset to the latter. A failure was charged to the southeast edge of the main portion of the Eunice field when Empire Oil & Refining Company's S. F. Felton 2, C SE NW 28-21s-36e, received plugging orders at 3990 feet, or 378 feet below sea level. In the south extension area, Shell Petroleum Corporation and Devonian Oil Company's A. L. Christmas 1, C NE NE 21-22s-36e, offers little encouragement for continued expansion of drilling, as it pumps only 30 barrels daily from broken lime section at 3750-3884 feet after dual acidation and a 350-quart nitro shot. Salt series was logged at 1705-2982 feet, with an elevation of 3539 feet. Repollo Oil Company's H. L. Houston 1, NE NE NW 7-21s-36e, flowed 806 barrels oil in 22 hours through open tubing after plugging back from 3946 to 3905 feet.

Repollo Oil Company's J. H. Williams 2, SW SW SE 33-19s-37e, east outpost location for the Monument field flowed 192 barrels initial through 1-inch tubing choke from lime at 3898-3911 feet. The same company's E. H. Bolding 1, NW NW NW 10-20s-37e, nearly 1½ miles to the southeast, missed the oil pay, and filled 300 feet with sulphur water at 4257 feet. It is scheduled for abandonment.

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LITTLE BEAVER TEST

Baker-Glendive Structure Holds Montana Interest

ROCKY MOUNTAIN FIELDS

WEEKLY STAFF REPORT

Baker, Mont.—Rocky Mountain oil and gas fraternity is centering its interest on the Montana-Dakota Utilities Co.'s Unit 1, NE NE NW 17-4n-62w, deep test of the Little Beaver Dome, superimposed structure on the huge Baker-Glendive anticline, extending from eastern Montana into western South Dakota. The well is drilling-in with the 6⅝-inch production casing set at around 6700 feet and total depth at 6798 feet.

Oil is reported standing 4500 feet in the hole. It rose to this level on a drill-stem test open 35 minutes. Importance is attached to the discovery because of the size of the Baker-Glendive anticline and its nearness to the Twin-Cities-Great Lakes market. The oil tests 27° Baume and has a gasoline content of 25 percent.

Production horizon is tentatively identified as the Quadrant lime of the Pennsylvanian age. The well may be deepened to test the Madison lime in the Mississippian. Results of production test will determine whether the well will be acidized at the present horizon.

The Little Beaver strike is the first oil to be developed on Baker-Glendive anticline though shallow gas wells have been produced for the past several years near Baker. Gas is developed in the Judith River formation at around 900 feet. If the strike develops into a commercial field it will give Montana an important reserve of black oil. To date Montana has only one black oil field of importance, Pondera, in the northern part of the state, which produces around 1800 barrels of semi-asphaltic base crude daily. Montana refineries last year consumed 2,175,000 barrels of black oil, most of which was shipped in from Wyoming.

The Baker-Glendive anticline is 96 miles in length, and extends northwest from Hardin County, South Dakota, through Fallon County, eastern Montana, into Dawson County. The anticline has an average width of 6 miles and a closure of 500 feet.

Flowing 13½ million cubic feet af gas, Cobb & Pardee's Stufft 1, CSE SW 25-36n-6w, in the Cut Bank field, Glacier County, northern Montana, is drilling ahead. The well flowed the most gas on record for the Moulton sand at 2980 feet. Operators killed the gas flow and are drilling ahead in the Cut Bank sand. The seven-inch casing will be carried below the gas sand and, if oil is found, casing will be cemented above the gas sand.

Whetstone et al had the best producer for the week: Tribal 117, SE NW 36-33n-6w, made 220 barrels oil in the first 24 hours. Later the well was shot with nitro glycerine and resumed swabbing with 2000 feet of oil in the hole.

R. C. Tarrant's Reichoff 2, Lot 9, 3-34n-6w, made 50 barrels of oil on the pump at 2975 feet in the Cut Bank sand. Well found the pay at 2964-2970 feet.

Santa Rita Oil and Gas Company had 1000 feet of oil in Barrington 1, SW NW 24-33n-5w. Only 11 barrels of oil were swabbed in eight hours, so the well will be shot with nitro glycerine. Sand was found at 2870-2875 feet.

New wells spotted in the field were: The Texas Company's Government-078788 1, CSW NE 17-32n-5w, rig up; A. E. Crumley's Alloted 113, 3, Lot 7, 31-33n-5w, location; R. C. Tarrants' Getty 6, SE NE SW 2-34n-6w, rig up; Stewart-Knutson's 1 Alloted 119, CSE SW 1-32n-6w, location; Kately-Drumheller's Ward 4, Lot 3, 10-34n-6w, drilling at 200 feet; Nadeau Brothers' Ewald, CNE SW 9-32n-5w, location; and Par-Oil Company's Haines 7, NW SW SW 2-34n-6w, rig up.

Kevin-Sunburst

Proving a disappointment in the Sunburst sand, Welsh Brothers' Dewald 1 failed to carry oil to make a north extension to the discovery pool of Kevin-Sunburst field this week.

DeWald 1, SW NE NE 26-35n-6w, found the Sunburst sand at 1551-56 feet; dry and drilling will continue to the Ellis formation.

Crumley's Freiberger 4, SE NE SE 24-35n-2w, is making 20 barrels daily at 1600-1605 feet, and is being put on the pump.

Crumley & Sons released location for Fryberger 4, SE NW SE 24-35n-5w. Mel Alexander is rigging up in the SW SW NW 25-35n-3w. Oien-Engemoen's Well 6, SE SW NW 14-35n-2w, is rigging up.

Three wells were staked by Continental Oil Company: Fee 7, SE NE NE 16-35n-2w, location; Fee 8, NE SE SE 16-35n-2w, location and Fee 9, SE SW SE 16-35n-2w, location.

Pondera Field

Jones Chambers is building a derrick for Erickson 1, SW SE SE 3-27n-4w, in Pondera field, Pondera County. Warrant Hasting's Erickson 2, NW SW NW 10-27n-4w, Pondera, is drilling at 763 feet, and William M. Fulton's Price 1, SW NE NE 18-27n-4w, is drilling below 1726 feet.

MAKES 1000 BARRELS

Rock River workover is rigging to pump

Laramie, Wyo.—Largest completion among deepening operations to the new Sundance pool in the old Rock River field, Carbon County, south central Wyoming, was brought in this week in Ohio Oil Company's Alvy Dixon 1, NEc SE 34-20-n-78w, which swabbed 1000 barrels in the first 24 hours. The well is rigging up to go on the pump with production horizon logged at 3255-3314 feet.

The Ohio Company recompleted Harrison-Cooper 9, SEc 33-20n-78w, for a gas repressure well in the Lakota sand at 3175 feet. The well was an old producer deepened from the Lakota. It developed water in the first Sundance sand and found the basal Sundance section missing, going to 3800 feet to the red beds.

On Big Medicine Bow Dome, Ohio Oil Company and The California Company are drilling at 4147 feet in Union Pacific 2, CNE NE 35-21n-79w, and at 3498 feet in Union Pacific 3, CNE SE 23-21n-79w, Carbon County.

On Quealy Dome, The California Company is having circulation difficulties in its test to the unexplored Sundance in Holst 3, NE SW SE 5-17n-75w, Albany County, which is mixing mud and trying to get on bottom at 3420 feet. Wilson 1, NW SW SW 18-17n-76w, Quealy, is drilling at 2718 feet.

The Mountain Fuel Supply Company this week started its 1936 drilling cam-

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paign in the gas fields of northwestern Colorado and southwestern Wyoming. The company is drilling water well for Carl Allen 1, NE SW SE 32-12n-97w, Moffat County, northwestern Colorado. It is on the Powder Wash structure, which has one gas well.

In the Hiawatha field, Moffat County, the company is deepening Georgia Kuykendall 1, NEc SE NE NE 22-12n-100w, at 2360 feet. The well last year developed around 150 barrels of green oil on deepening to 2280 feet into the Florence Wilson member of the Wasatch series.

COLORADO

Flagler, Colo.—Fifth deep test for the eastern plains region of Colorado started this week in H. V. Elwell's Federal Land Bank 1, CSE SW 20-9s-50w, near here. Location for the well was made following a seismograph survey of a block of 15,000 acres.

Test will be drilled at 8000 feet if necessary. Gulf Oil Corporation and The Texas Company hold acreage on the block. In the Buckingham-New Ryamer district, Continental Oil Company's State Bank of Trenton 1, CNW NE 21-8n-59w, Weld County, is waiting on cement to set around the 16-inch surface casing at 421 feet.

MOUNTAIN STATES
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTANA		
GLACIER COUNTY, (Cut Bank Field)—		
Marshall & Manning, Tribal 1, lot 7, 7-32n-3w	105	2969
TOOLE COUNTY, (Kevin-Sunburst Field)—		
Eddy-Engleking, Sohn 1, sw ne 26-35n-3w	*	1648
WYOMING		
CARBON COUNTY, (Rock River Field)—		
Ohio Oil Co., Harrison-Cooper 8, sw sw 35-20n-78w	354	3374
NEW MEXICO		
LEA COUNTY, (North Eunice Pool)—		
Sun Oil Co., W. W. Weatherly 1, c ne sw 17-21s-37e	75	3815
LEA COUNTY, (Eunice Field)—		
Conoco & California Co., A. E. Meyer 6-A-17, c nw sw 17-21s-36e	1200	3955
A. E. Meyer 4-A-18, c sw ne 18-21s-36e	750	3931
Empire O&R Co., S. F. Felton 2, c se nw 28-21s-36e	*	3990
Repollo Oil Co., H. L. Houston 1, ne ne nw 7-21s-36e	850	3946
Shell, State 1-H, c se se 13-21s-35e	240	3954
Shell-Devonian Oil Co., Christmas 1, c ne ne 21-22s-36e	40	2884
LEA COUNTY, (Monument Field)—		
Amerada Pet. Corp., State 2-H, c nw se 1-20s-36e	1200	3879
State 2-Q, c sw ne 30-19s-37e	2000	3964
State 1-P, c nw sw 29-19s-37e	1000	3930
Chas. H. Weir 1-B, c sw ne 26-19s-36e	100	4030
Continental Oil Co., State 2-C-30, c nw nw 30-19s-37e	2500	3975
State 3-C-30, c se nw 30-19s-37e	1500	3959
Gulf Oil Corp., G. C. Matthews 1, c nw se 6-20s-37e	3000	3884
Repollo Oil Co., E. H. Bolding 1, nw nw nw 10-20s-37e	*	4257
J. H. Williams 2, sw sw se 33-19s-37e	500	3915
LEA COUNTY, (East Jal Field)—		
Culberson-Erwin & Stovall, Stuart-Repollo 1, c sw se 10-25-37	5000	3294
Harry W. Leonard et al, C. W. Justis 1, c nw nw 20-25s-37e	17	3501
Sun Oil Co., J. R. Stuart 1, c nw ne 15-25s-37e	35	3380

*Failures; †Junked; ¶Million cu. ft. gas.

Buttonwillow

SOUTH DOME AREA ACTIVE; VENICE EXTENSION LOOMS

WEEKLY STAFF REPORT

Los Angeles.—From a leasing standpoint the most active area in the San Joaquin Valley is the south dome area of Buttonwillow. Of several wells drilled in this district, the Wilshire Oil Company's Salisbury 1, Section 7-29s-24e, which was drilled to 6995 feet and abandoned in 1932, is regarded the most important. It is located about one mile north of the northwest tip of a geophysical high that has since been established. Oil and gas showings were encountered in the drilling of this well. They were insufficient, however, to yield commercial production.

South of this area the Ohio Oil Company is coring K.C.L. D-1, Section 1-30s-25e, at 7700 feet, and the Shell Oil Company's K.C.L. 1, Section 29-30s-26e, has been drilled to 7888 feet and is reaming at 7450 feet, preparatory to cementing casing.

Leasing is also active north and south of Section 2-27s-26e, east of the town of Fomosa. In the Cuyama Valley district additional acreage has been obtained by maior operators. Oil seeps occur in the hills north of the valley.

South of Maricopa, in the vicinity of the Pioneer anticline, approximately 1000 acres have been turned to a major company for the purpose of drilling a test well. The old General Petroleum Corporation's Bell-Wrightsman well was drilled in this area and produced about 10 barrels of high gravity oil per day for a short time.

In the proximity of the town of Castoria, near Sacramento, considerable acreage is being acquired, supposedly for a wildcat test.

Kern County

Western Gulf Oil Company's Red Ribbon 3, extension test of Fruitvale field, Kern County, was completed flowing 500 barrels a day of 18.0 gravity oil through a 52/64-inch bean. Total depth is 3450 feet with 8⅝-inch casing cemented at 3382 feet.

Allied Petroleum Corporation's 17, outside test of Mountain View field in Kern County, Section 19-30s-29e, would not flow and was completed on the pump for 375 barrels a day of 22.9 gravity oil. The well was drilled to 5168 feet with 8⅝-inch shut-off cemented at 4954 feet.

Welport Oil Company's 14, Section 26-29s-21e, with bottom at 1572 feet, on formation test from 1527 to 1572 feet, flowed 7,640,000 cubic feet of gas with 520 pounds shut-in pressure. Casing has been cemented on bottom and will be gun-perforated.

The Den Petroleum Company has a rig erected for a test located approximately 150 feet north and 330 feet east from the southwest corner of Section 20-25s-19w.

In Poso Creek area, M. Unger's wildcat test in Section 27-26s-28e, has been drilled to 1619 feet in gray sand and clay. The top of the Walker zone was cored at 1456 feet. The hole has been plugged to 1410 feet for a test of upper showings. Top of the Vedder was cored at 1218 feet.

Standard Oil Company of California's McDonald Island 1, important wildcat test in San Joaquin County, Section 24-2n-4e, has been drilled to 5204 feet in hard sand and preparations are being made to run formation tester.

Holly Development Company's Padden 1, Section 16-2n-5e, wildcat test in San Joaquin County has been abandoned at 4125 feet in gray barren sand.

C. J. Gibson's Hart & Dearin 3, Section 6-11n-23w, Maricopa Flats area, has been drilled to 3315 feet in gray sand and is abandoned. The company's O'Brien 3 is drilling at 1000 feet having spudded on May 10.

Shell Oil Company's Dorsey-Flack 1, Section 7-11n-23w, is bottomed at 2794 feet in oil sand and 8⅝-inch casing is standing cemented at 2682 feet.

J. E. O'Donnell's Bloemer 1, Section 17-30s-29e, has obtained a shut-off on seven-inch casing which is cemented at 3865 feet, and with bottom plugged to 3940 feet is bailing for production. This test is located midway between Mountain View and Edison fields of Kern County.

In Kern Front field, Kern County, Republic Petroleum Company has made location for Crosby 1, a test well, 1120 feet north and 200 feet east from the southwest corner Section 12-28s-27e. H. W. Haggerty has acquired 120 acres in the southeast one quarter of Section 13-28s-27e and is hauling in material for a test of this outside area.

W. H. Fortine has made a location for Mosesian 1, a wildcat test five miles west of Terra Bella, Tulare County, 125 feet south and 725 feet west from the NE corner Section 22-22s-26e.

F. E. Connoly's Borton 1, Section 21-29s-27e, northern extension test of the Fruitvale field in Kern County, is coring at 4145 feet in gray sand. Coring has been continuous from 3747 feet without any oil showings.

In Section 22-30s-29e, Edison field, Buckeye Union Oil Company's Hay 1 on an electrical test showed 20 feet of oil sand from 3117 to 3137 feet. It is planned to test this interval for production before abandoning the well. The hole was originally drilled to 4257 feet

in Schist. Santa Margarita, which was topped at 3460 feet, was barren of any oil showings.

Signal Oil & Gas Company's Tejon Ranch 1, wildcat test in Section 30-32s-30e, Kern County, drilled in the granite at 267 feet and has been abandoned.

In the city of Taft, Kern County, Ed McAdams' Ohio 1, Section 23-32s-23e, has been abandoned at 2000 feet. Tar showings were encountered during the early drilling of this well, but were not considered worthy of testing.

Burkholder Oil Corporation has leased 40 acres for immediate drilling in Taft Heights district, Kern County, in the NW quarter of Section 23-32s-23e.

Associated Oil Company has poured foundations for Williamson 2, located 200 feet north and 500 feet east from S¼ corner Section 2-26s-20e. This location falls north of Lost Hills field in Kern County.

Seaboard Oil Corporation's Welsh 1, Section 10-16n-13e, Fresno County wildcat, has been abandoned after drilling to 4454 feet. Hole was bottomed in Tume standstone.

Venice Extension Test

Union Oil Company's Del Rey 13, Venice field, was completed May 9 for 247 barrels a day of 22.5 gravity oil flowing through a 31/64-inch bean. Total depth is 6078 feet with 6⅝-inch casing cemented at 6011 feet.

Eastern Oil Company's D.R.L.&W. 1, Section 22-2s-15w, bottomed at 7379 feet, is attempting an eastern extension of Venice field. Heavy showings of gas are still being encountered. Two hundred and forty tons of special material have been added to the circulating mud in order to keep the well under control. It is now accepted by oil men that this project has encountered something structurally different in this area. Leasing is active.

Pamaco Royalty Company has acquired 600 acres in the Palos Verdes area in Los Angeles County and is building a rig for Burkhard 1, 3353 feet south and 814 feet east from the southwest corner of Section 36-4s-14w, placing the well in Section 1-5s-14w. Pro-

CALIFORNIA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
KETTLEMAN HILLS, North Dome—		
Kettleman North Dome Assn., 87-20J	2665	8169
Kettleman North Dome Assn., 76-30J	1280	8240
Standard Oil Co., 27-19J	1760	8840
EDISON—		
General Pet. Corp., Speed 10-8	112	1855
KERN FRONT—		
Republic Pet. Corp., Strassburger 8	225	2096
MIDWAY SUNSET—		
Standard Oil Co., J. M. M. M. 65	55	2160
MOUNTAIN VIEW—		
Allied Pet. Co., Allied 18	277	5168
ROUND MOUNTAIN—		
Shell Oil Co., Caldwell 4	435	1956
SANTA BARBARA COUNTY—		
Shell Co., Orella 3	32	2922
Cavarubias 1-12	67	2600
ELWOOD—		
Honolulu Oil Corp., Ltd., 90-9	65	7014
VENTURA AVENUE—		
Associated Oil Co., Lloyd 98	205	6500
Lloyd 134	77	9378
MONTEBELLO—		
Wilshire Oil Co., Montebello 1	227	6353
VENICE-DEL REY—		
Union Oil Co., Del Rey 13	247	6078
WEST COYOTE—		
Standard Oil Co., M-C 125	342	6000
WILMINGTON—		
Sovereign Oil Co., Banning 1	150	3663

*Failures; †Junked; ¶Million cu. ft. gas.

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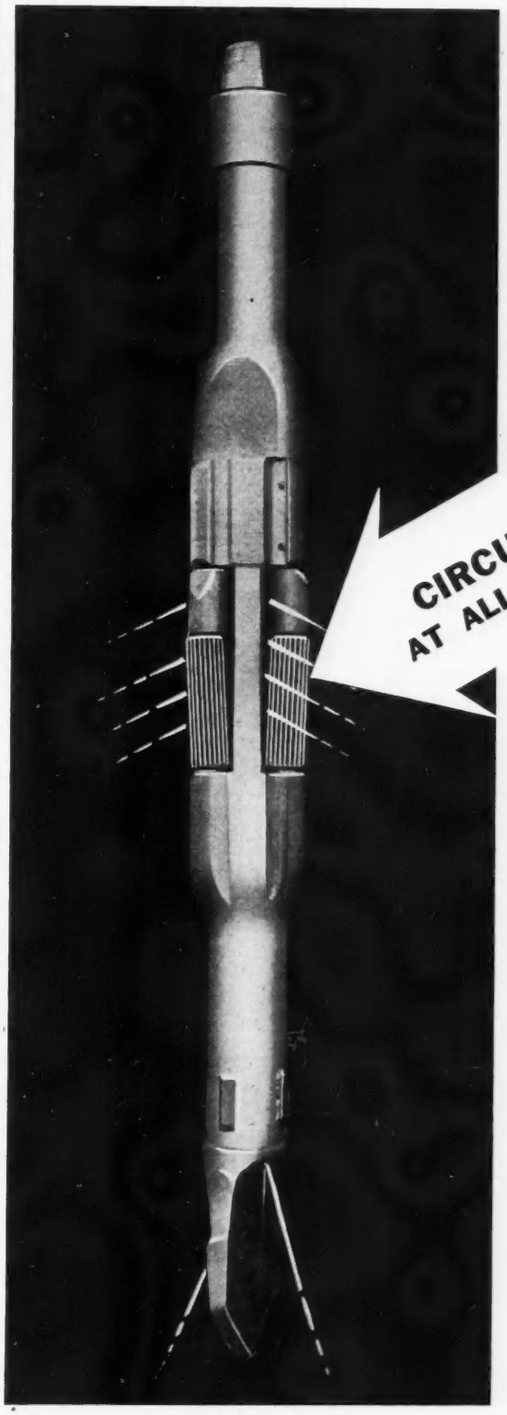

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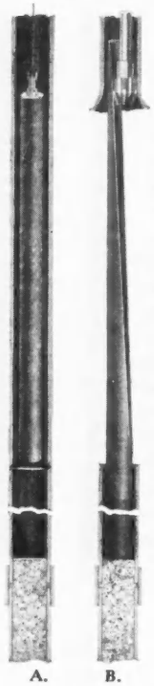

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B.—*Ready to sidetrack after shot.*

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duction is expected at the Miocene-Schist contact at a comparatively shallow depth. Prior to this location the company drilled 18 core holes in a northwest-southeast direction through this section.

Republic Petroleum's El Segundo 2, El Segundo area of Los Angeles County, was recompleted flowing 300 barrels a day of 37.7 gravity oil through a 41/64-inch bean. Total depth is 7477 feet with seven-inch casing cemented at 7355 feet; 174 feet of 5¾-inch liner, including 74 feet of perforated, has been landed at 7471 and cemented through perforations at 7403 feet.

In Montebello field of Los Angeles County the Wilshire Oil Company completed Afheldt 1 flowing 207 barrels per day of 37.0 gravity oil through a 61/64-inch bean. This well was drilled to 5905 with 8⅝-inch shut-off cemented at 5720 feet.

Standard Oil Company of California's Murphy-Coyote 125 was completed for 946 barrels a day of 27.9 gravity oil cutting 12.0 percent. Total depth is 6000 feet, with 8⅝-inch casing cemented at 5516 feet.

In Wilmington district, Sovereign Oil Company completed Banning 1 for 100 barrels a day, 14.2 gravity oil, cutting 5.0 percent. After pumping for a few days, the tubing was lowered to 2340 feet. The well is now pumping 150 barrels a day, 16.0 gravity oil, cutting 2.0 percent.

Southeast of Dominguez field, Los Angeles County, West American Oil Company's Del Amo 1, Section 3-4s-13w, has been drilled to 8358 feet with 40 feet of oil sand and shale on bottom. Conductor string is standing cemented at 6240 feet preparatory to coring deeper.

In Westminister district of Orange County, Section 14-5s-11w, Hillman and Long's Westminister 1, with bottom at 7701 feet, has 8⅝-inch conductor casing cemented at 5557 feet. This casing was set entirely as a protection string, there being no oil showings.

Republic Petroleum Company is building a rig for a semi-wildcat test in Athens-Rosecrans area of Los Angeles County, located at the intersection of Rosecrans and Figueroa streets, Section 18-3s-13w.

Two new wells appear in the Signal Hill field this week. Big Four Oil Company is rigging up for No. 3 at the intersection of Spring and California streets, and the Oceanic Oil Company has made a location for No. 1 at the intersection of Twentieth and Obispo streets.

RECORD GASSER
Two Gladwin failures slow drilling plans

MICHIGAN WEEKLY STAFF REPORT

Mt. Pleasant, Mich.—Failure of two north extension tests of the Beaverton oil field, Gladwin County, to show in Dundee lime may cripple an anticipated play in that district this summer. Already largely defined all but to the north, the Beaverton pool now appears limited to a comparatively small area.

Charley Bell's Ross 1, 18n-2w-34, a half mile north of the farthest north producer, topped Dundee at 3900 feet and went into black water at 3956-67 feet. Mammoth Petroleum & Refining Corporation's Mellinger 1, 18n-2w-35, half mile northeast of Ross, also was a Dundee failure.

Of 12 completions for the week six were gas wells, only 1 oil well and 5 failures. The gas completions included Hyatt & Norton's Fouts 1, 12n-7w-3, Montcalm County, for 53½ million feet with 29 feet of pay sand bottomed at 1272 feet for a record initial in Michigan.

Pollution Hearing

Representatives of the oil industry, sugar beet industry and the Dow Chemical Company of Midland have been cited to appear before the State Stream Control Commission in Lansing on May 26 in a brine and industrial waste hearing. This is the newest development in the brine control situation in the state, which has been in the public eye for months.

Meanwhile, A. J. Weideman, chairman of a three-man committee of Crystal oil field operators, said that operators had subscribed $10,000 to finance past and future experimentation with brine disposal in the Crystal field.

MICHIGAN
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
GLADWIN COUNTY—		
Mammoth Pet. & Ref. Co., Mellinger 1, 18n-2w, se ne sw-35	*	3971
Chas. Bell, Ross 1, 18n-2w, se se se-34	*	3972
ISABELLA COUNTY—		
Pure Oil Co., Comstock 1, 13n-6w, se sw sw-15	*	3560
MECOSTA COUNTY—		
W. E. Ross, Bale 1, 13n-7w, c se ne 1131	¶21.7	1346
Refiner Pet. Corp., Garner 1, 13n-7w, c sw nw-33	¶30	1320
L. T. Barber, Fleming 1, 13n-7w, c sw sw-27	*	1330
MONTCALM COUNTY—		
Frank David, Bloomfield 1, 12n-7w, c ne nw-5	¶28	1300
Gordon Oil Co., Highbee 1, 12n-7w, c ne sw-4	¶35	1312
Hyatt & Norton, Fouts 1, 12n-7w, c sw nw-3	¶53	1272
Fletcher & Leyman, Dawes 1, 12n-7w, c se ne-4	¶39	1310
Rowmor Oil Corp., Lamphier 1, 10n-5w, nw sw ne-2	450	3199
Daily Crude Oil Co., Chritensen 6, 12n-6w, se nw ne-10	*	3613

*Failures; †Junked; ¶Million cu. ft. gas.

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WEEKLY STAFF REPORT

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
OHIO		
ASHLAND COUNTY—		
Preston Oil Co., Talbott 1	26	2650
MUSKINGUM COUNTY—		
Loretta Havey, H. P. Muhlback & Co. 1	20	....
MEIGS COUNTY—		
Lafe McKnight, Grass 1	¶	783
Meigs Dev. Co., Price 1	¶	831
Gandee 3	*	731
Ohio Fuel Gas Co., Barton 1	¶	711
MEDINA COUNTY—		
Ohio Fuel Gas Co., Barnes 2	¶	3282
Oko O&G Co., Sanford & Watson 44	2	397
STARK COUNTY—		
Ohio Fuel Gas Co., Buchtel 4	¶	4280
Harmount 4	¶	4382
East Ohio Gas Co., Smith 1	¶	4322
HOLMES COUNTY—		
Ohio Fuel Gas Co., Mizer 1	¶	4032
SUMMITT COUNTY—		
East Ohio Gas Co., Krasinski 1	¶	4029
COSHOCTON COUNTY—		
M. C. Waltz, Lawrence 11	3	810
Ohio Fuel Gas Co., Eggler 1	*	2824
ATHENS COUNTY—		
Clyde Cody, Lowther 3	*	956
A. D. Townsend, Bengi 3	*	....
WASHINGTON COUNTY—		
Mosier & Co., Pugh 21	10	470
Bowman Bros., Leyde 5	*	1330
Henry Tresctell, Trechell 16	*	606
LICKING COUNTY—		
Everett Co., Nethers 1	95	2995
Pure Oil Co., Loygsen 7	64	3139
PERRY COUNTY—		
Hopewell Gas & Fuel, Lonas 1	¶	2824
Mid-East Gas Co., Melick 1	*	3180
Paxon 1	*	3263
NOBLE COUNTY—		
Thurman, Rich & Co., Murphy 1	¶	1452
WEST VIRGINIA		
CLAY COUNTY—		
Elk River Gas Co., Keith 1	¶	2482
CABELL COUNTY—		
Shale Gas Co., Johnson 1	¶	....
CALHOUN COUNTY—		
Kingsberry & Dollman, Lynch 2	8	2315
W. C. Kingsberry & Co., Pratt 3	¶	....
GILMER COUNTY—		
Hope Construction Refg., Boggs 1	*	3214
Leonard Cain & Co., Moore & Stewart 1	¶	1400
WIRT COUNTY—		
W. C. Patterson, Hale 26	1	352
ROANE COUNTY—		
K. M. Hunt & Co., Murray 2	10	....
LINCOLN COUNTY—		
G. H. Jackson Co., Seites 1	*	....
KANAWHA COUNTY—		
Owens Illinois Gas, Christy 2	¶	....
Cambridge Gas Co., Wiserman 5	¶	....
KENTUCKY		
McLEAN COUNTY—		
Sunflower O&G, Shockley Bros. 5	50	....
Schokley Bros. 6	55	....
Walter Sargent, Taylor Tract 3	*	....
Gabbert Interests, John Brown 1	*	....
Hupp, Duff & Co., Candy Graham 1	85	....
J. C. Miller, Crowe Tract 1	75	....
William Short 1	*	....
Hupp & Duff, Tanner Tract 3	150	....
Walter Sargent, H. D. King 2	50	....
OHIO COUNTY—		
Kentucky Nat. Gas, Nannie Rogers & Co. 13	115	....
Ekis & Co., Richards Hrs. 1	*	....
Lowe & Co., John Powell 1	*	....
B. E. Calvert & Co., P. R. Kelley 4	*	....
INDIANA		
DAVIS COUNTY—		
Oliphant & Sage, Paul Fuhrman 1	¶	597
KNOX COUNTY—		
O. A. Thayer, Myrtle, Cowles 1	*	845
PERRY COUNTY—		
Nollem O&G Corp., Jacob Hauser Estate 1	¶	491

*Failures; †Junked; ¶Million cu. ft. gas.

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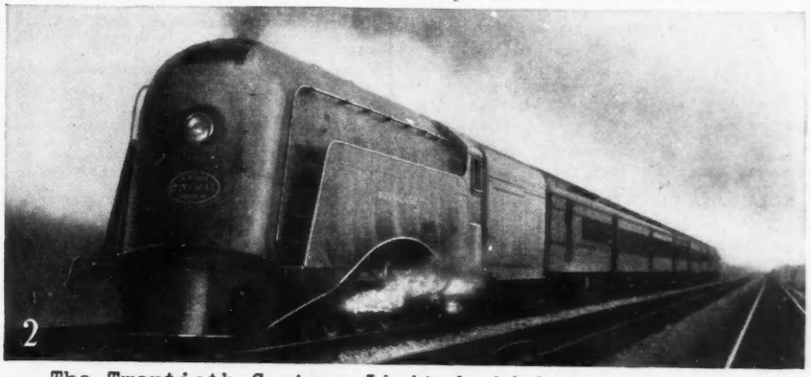

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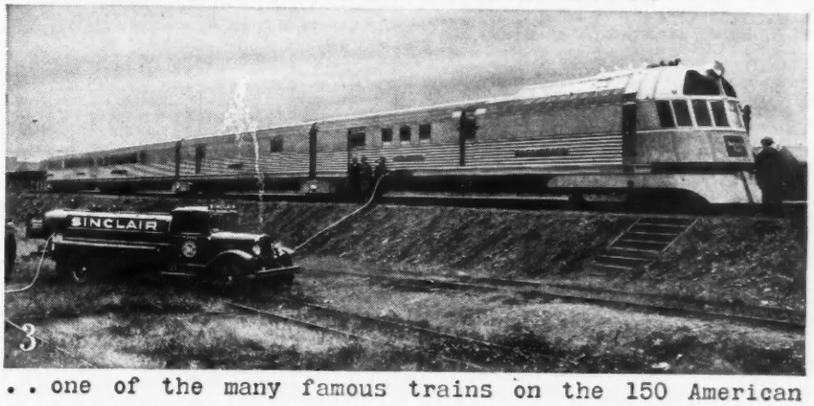

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THE OIL WEEKLY REPORT ON IMPORTANT *Wildcat Tests*

ALABAMA

HOUSTON COUNTY—Rice O&G Co.'s Oakley Est 2, nw sw 9-3n-29e, arr core ahead 3437 ft sand and shale.

ARKANSAS

BRADLEY COUNTY—Phillips Pet. Co.'s Murphy Land Co 1, nw nw 12-17-11, rur.

CALHOUN COUNTY—Ben Barnett Tr.'s Freeman Smith 1, se nw sw 36-15-14, sd 2745 ft, install heavier rig. Proetz & Brown's Calion Lbr. Co. 1, se sw 22-15-15, mir.

COLUMBIA COUNTY—J. C. Buckbee Tr.'s J. B. Wilson 1, sw ne 17-17-18, elev 319 ft, core lime 3425 ft.

CRAWFORD COUNTY—Trumbo et al's Craddock 1, c nw ne 3-11-30, top Mississippi lime 965 ft, woc 8¼-in csg 1582 ft.

HEMPSTEAD COUNTY—Easton & May's Conway 1, ne sw 20-12s-27w, elev 290 ft, top Saratoga chalk 60 ft, base hd chalk 530 ft, cored massive anhydrite 1913-28 ft, arr core again.

LA FAYETTE COUNTY—Erwin & Leach's (Ohio Oil Co.) Bodcaw Lbr. Co. 3, nw nw 20-16-23, elev 250 ft, fsh 7561 ft. Joe Modisett et al's Frost Lbr. Co. 1, sw sw 21-19s-24w, elev 261 ft, dry abn td 6008 ft. A. M. Neely's Meek 1, ne nw 35-19-25, mim.

LONOKE COUNTY—Frank F. Silver's Jos. Chambers Est. 1, sw ne nw 17-2-7, rur.

MILLER COUNTY—King Oil Corp.'s Mann 1, 2-16-26, rur. Deep Rock Oil Co.'s Williams 1, nw sw nw 6-16-25, spd.

OUACHITA COUNTY—Carnes & Harrell's Robertson 1, nw se 7-12-19, woc 12½-in csg 180 ft. O. F. Whittaker's Howard 1, nw ne 20-12-16, top Nacatosh 1404 ft, coring 1407 ft. Lion O. R. Co.'s Reynolds-Berg 1, se ne 28-15-15, mim. Phillips Pet. Co.'s Mary Murphy 1, ne ne 28-15-15, lcn; Mary Murphy 2, ne ne 28-15-15, lcn; J. T. Arnold 1, w½ ne 27-15-15, rur; Berg 1, ne se 28-15-15, rur. Gette 1, n½ se 28-15-15, rur. Harris 1, 27-15-15, lcn. Standard Oil Co. of La.'s Reynolds B-3, se ne sw 27-15-15, spd, cemt 13-in csg 640 ft; Reynolds B-4, nw sw 27-15-15, mim. John Pugh's Hildebrandt 1, se se 28-15-15, rur.

UNION COUNTY—J. C. Buckbee Tr.'s Ezzell 2, ne nw 13-17-15, tested sw, coring 3895 ft.

CALIFORNIA

FRESNO COUNTY

COALINGA—Jas. M. Conlon Co.'s No. 1, 30-19-15, td 889 ft, pumping little heavy oil.

MONOCLINE RIDGE—Seaboard Oil Corp.'s Welsh 1, 10-16-13, td 4465 ft, sd.

CURRY MOUNTAIN—Standard's So. Coalinga 1, 36-21-14, dr 1623, hard sand.

CANTUA CREEK—Western Gulf Oil Co.'s S. P. Land 3, 3-17-15, sand and shale, coring, td 5655 ft.

KERN COUNTY

SO. MARICOPA—American Pacific Oil Co.'s No. 1, 18-10-23, rig. E. A. Bender's No. 1, 14-10-23, td 458, drlg out cement.

McKITTRICK—Belmac Dr. Co.'s Douglass 1, 22-29-21, sd 4800 ft. Punte Oil Co., Well 22, 11-30-21, lcn.

DEVIL'S DEN—Cumberland Oil Co.'s Mabry 2, 17-26-18, td 4729 ft, sd. Richfield's Alferitz 2, td 3155, hard sand, drlg. Don Pet. Co Inc., Bates 1, 20-25-19, rig.

McVAN—Framac Oil Co.'s Brown 2, 22-27-27, td 1413 ft, cleaning out.

POSO CREEK—Bargol Oil Co.'s Bargol 1, 11-27-27, shale, td 1380 ft, drlg. Miley Unger's 1, 27-26-28, td 1619 ft, plug 1410.

SO. BUTTONWILLOW — General's Doyle McKeon 1, 5-30-24, td 6149 ft, cleaned out.

MOUNT POSO—H. Mann's No. 2, 27-26-28, td 1537 ft, sd.

MOUNTAIN VIEW—Mohawk Oil Co.'s Earl Fruit 1, 10-31-29, td 1290, sand and shale, spud 5/10/36.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandonep well.*	owdd—*old well drilling deeper.*
‡—*salt water (completions).*	owpb—*old well plugging back.*
†—*junked and abandoned.*	pb—*plugged back or plugging back.*
¶—*million 'eet o' gas.*	r—*reaming.*
abd—*abandoned.*	rog—*rig on the ground.*
bbls—*barrels.*	rur—*rigging up rotary tools.*
br—*building rig.*	rust—*rigging up standard tools.*
b.s.—*basic sediment.*	sd—*shut down.*
csg—*casing.*	sdtr—*sidetracking.*
co—*cleaning out.*	sg—*show gas.*
dd—*drilling deeper.*	si—*shut in.*
dk—*derrick.*	so—*show oil.*
dr—*drilling.*	so g—*show oil and gas.*
fsg.—*fishing.*	spd—*spudding.*
ft—*'eet.*	sr—*straight reaming.*
hfw—*hole 'ull o' water.*	sw—*salt water.*
in—*inches.*	td—*total depth.*
lcn—*location.*	ur—*underreaming.*
m—*milling.*	wih—*water in the hole.*
mim—*moving in materials.*	wo—*workover.*
mit—*moving in tools.*	wocs—*waiting on cement to set.*
mot—*milling on tools.*	wosr—*waiting on standard rig.*
n, s, e, w—*north, south, east, west.*	
oih—*oil in hole.*	

BUENA VISTA LAKE—Ohio Well A-6, 32-31-26, td 4676 ft, testing wocs. Well A-7, 5-32-26, bldg rig.

STRAND—Ohio's D-1, 1-30-25, td 7580, sand and shale, coring.

GRAPE VINE—Ohio's Title Ins. 1, 36-11-19, td 1060, shale. Spud 5/11/36. Reserve Oil & Gas Co.'s No. 1, 33-11-19, td 6030 ft, sd.

KERN FRONT—Amer. Exploration Co. Exp. 1, 16-28-27, sand and shale, td 2290, drlg.

EDISON—R & R Devel. Co. Well R. R. 2, 32-30-30, hd gr sand, td 704, drlg. Pioneer Holding Co. Pioneer 2, 17-30-30, td 1081, dr sand and shale.

MOUNT POSO—Poso Pet. Co.'s No. 1, 2-27-27, td 1625 dr, shale.

ROUND MOUNTAIN—Piute Holding Co.'s Piute 1, 17-28-29, lcn.

NO. MOUNT POSO—Santa Carla Oil Co.'s Glide 1, 7-26-28, dr 2008 ft.

STEVENS AREA—Shell's K.C.L. 1, 29-30-26, r to set csg, td 7888 ft.

COMANCHE POINT — Signal Oil & Gas Co.'s Tejon 1, 30-32-30, td 283 ft, sd. Tejon Ridge Oil Co.'s No. 1, 23-32-29, dr 2394 ft, coring.

WHEELER RIDGE—Silver Gate Co.'s Tejon 1, 7-10-19, sd 2985 ft.

LOST HILLS—Standard's United 1, 2-26-20, td 6335 ft, repairing equipment. Associated's Well 2, 2-26-20, bldg rig.

BUENA VISTA—Superior's B.V.A. 1, 6-32-25, sd 4880 ft.

POSO CREEK—Milton J. Unger's No. 1, 27-26-28, dr gray sand 1350 ft.

McFARLAND—Woods & Bailey's No. 1, 16-26-26, td 3898 ft, shale, dr.

HUMBOLDT COUNTY

EUREKA—Texas' Eureka 2, 22-3-1, td 4357 ft, cut and pulled drill pipe.

KINGS COUNTY

PYRAMID HILLS—Associated's Avenal 1, 35-23-17, foundation. J. P. Herndall & Assoc. (was Royalty Service Corp.'s No. 1) Spreckles 1, 16-24-18, 4201 ft. Standing.

DOS PALOS—Pure Oil Co.'s Chowchilla 3, 17-10-14, td 1255 drlg hard sand.

SAN JOAQUIN COUNTY

STOCKTON—Holly Dev. Co.'s Padden 1, 16-2-5, dr 4171 ft, sd. Standard's McDonald 1, 25-2-4, td 5204, hard sand.

SAN LUIS OBISPO COUNTY

CARRIZO PLAINS — Barnsdall Oil Co.'s Wreden 1, 24-28-17, fsh for drill pipe, td 3550 ft. J. C. Theriot, Holland 1, 22-32-22, td 2135 ft, prep to deepen.

ARRIOY GRANDE—Pismo Pet. Co.'s Scott 2, 5-32-13, grade. Birch-Rover Oil Co. Patchett 1, 33-31-13, td 1761 ft, dr shale streaks of sand. J. D. Martin's No. A-4, dr 2200 ft; C-L, dr 1900 ft. A. T. Jergins Trust, Lowther 1, 5-32-13, rur.

ELKHORN—United Oil Co.'s No. 1, 2-32-21, td 150 ft, wocs. E. D. Bacon's No. 1, 22-31-2, surface formations.

CHOLAME—Willett Oil Ass'n Jack 2, 10-25-15, 3642 ft, standing bridged.

DOS PALOS—Pure Oil Co.'s Chowchilla 3, 17-10-14, rig.

STOCKTON—Holly Dev. Co.'s Padden 1, 16-2-5, sand and shale, td 4074, dr.

MARYSVILLE—Buttes Oilfields, Ltd.'s Well 4, 18-15-2, lcn staked.

SOLANO COUNTY

RIO VISTA—Amerada Pet. Corp.'s Emigh 1, 26-4-2, shale, td 3741, dr, sand and shale.

TEHAMA COUNTY

CORNING — Northern Counties Pet. Co.'s Ewers-Mooney 1, 25-24-3, td 7549 ft, hd sand reaming.

TERRA BELLA—W. H. Fortine, Mosesian 1, 22-27-26, lcn.

MONTEREY COUNTY

WEST PLEYTO—Shell's Branch 1, 34-24-10, dr sand and shale 8718 ft.

SANTA BARBARA COUNTY

CHOLAME, No. Dome—Cholame Hills Oil Co.'s Hillman 1, 15-24-14, lcn.

SUMMERLAND—Toney Carnero's Fithian 1, 8-4-24, td 1025 ft, sd.

SANTA MARIA — Hall-Baker's Preisker 1, 12-9-34, td 2200, sd; Preisker 5, td 300, spud 5/7. Union's Enos 19-1, grade. E. H. Moore, Inc. Union Sugar A-1, 36-10-35, bldg rig over old hole.

EL CAPITAN—La Canada Oil Corp.'s Well 1, 33-5-30, rig.

LOMPOC — Lompoc Pet. Corp.'s Beauterbough 2, 18-7-24, sd 3940 ft. York Oil Co.'s No. 3, 33-8-34, setting boilers.

CARPENTERIA—Santa Barbara Oil & Gas Co.'s Bryce 1, 29-4-25, sd 2300 ft.

POINT CONCEPTION—Union's Sudden 1, 15-5-25, sd 2221 ft.

MESA—Anacapa Oil Co.'s Well 4, shale, td 1610 ft, drlg.

COAL OIL POINT—Bankline Oil Co.'s Permit 191-2, td 500, standing plugged. Will redrill.

BETTERAVIA—E. H. Moore, Inc.'s Union Sugar A-1, 25-10-33, rig.

VENTURA COUNTY

CHIELLS CANYON — Bankline Oil Co.'s Calumet B-1, 3-3-19, dr gray sand 4578 ft. Petroleum Securities Co.'s Home R. 3-3-19, sdy shale, 3275 ft, drlg. Texas' Shiells 129, 4-3-19, td 4812 ft, plug 4260 ft; Shiells' 130, sdy shale, td 2035 ft, drlg; Shiells 131, spud 5/12, td 268 ft.

SO. MOUNTAIN—Calco Pet. Corp.'s Calco 3, 17-3-20, shale, sidetracking reamer, td 3210 ft.

OJAI—Continental Oil Co.'s Pirie 2, 12-4-23, td 1017 ft, to deepen.

OXNARD—General's McGrath 2, 26-2-23, dr, hard shale 6803 ft.

SANTA PAULA — High Mesa Oil Co.'s Butcher 1, 16-4-22, td 650 ft, co. Rennie Bros' Well 1, 21-4-21, sd.

SIMI—Jas. S. Hull's No. 1, 2-2-18, td 1715 ft, sd.

PIRU—R. P. Johnson's Rubel 1, 21-4-18, td 1640 ft, plug 1300 ft, sd. Bolsa Chica Oil Corp.'s Snow 3, 4-4-18, dr hard brown shale 2135 ft; Snow 4, td 277, dr spud 5/11.

SESPE CANYON—Merchants Pet. Co.'s No. 1, 1-4-20, grading lcn. Frans Nelson's 29-5-19, sd 2000 ft. Topo Topo Oil Co.'s No. 3, 33-5-19, td 1250 ft, co. Condor Oil Co.'s No. 1, dr shale 1171 ft, drlg. Calkan Pet. Corp.'s Well 1, 23-5-20, sh, td 290, drlg.

BARDSDALE—Union Dryden 10, 12-3-20, td 6055 ft, pumped 88 bbls. Bestco Pet. Co.'s Frey 1, 2-3-19, gray sand 2765 ft. El Rancho Oil Co.'s Elkins 1, 9-3-19, sd 4040 ft. Laing & Jacob's No. 1, sd 1225 ft. Pet. Sec. Elkins 1, 7-3-19, shale and sand, td 4312 ft, drlg.

SOUTHERN CALIFORNIA

PUENTE—Chas. R. Butler's Butler 1, 14-2-10, sd 4145 ft.

NO. LONG BEACH—Geo. L. Clayton's No. 1, 31-3-12, td 6765 ft, sd.

TORRANCE—Codri Oil Co.'s No. 1, 28-4-13, td 3568 ft, washing with acid. Eyer Pet. Corp.'s No. 1, 20-4-13, 3794 ft, sd. Jas. S. Hull, Well 1, 20-4-13, bldg rig.

ARTESIA—Davis & Lewis No. 1, 25-3-12,

rig. M. T. Bernstein, (was Vanco Dev. Co.) Millard 1, 25-3-12, td 5888 ft, to redrill.

GARDENA—A. C. Edington's No. 1, boilers.

WILMINGTON—General's Terminal 1, sdy sh, td 2204 ft, drlg. Harbor Drlg Co. Well 1, 33-4-13, grav sand, td 3030 ft, drlg. Sovereign Oil Corp.'s Banning 1, 28-4-13, td 3663 ft, prep to pump.

PUENTE—McVicar-Roods Sentous 1, 6-2-9, shale 1080 ft, drlg. Numac Oil Co. Rowland 2, 14-2-10, td 2545 ft, prep to pump.

TOPANGA CANYON — Monarch Pet. Co.'s No. 1, 5-1-16, sd 650 ft.

WEST LONG BEACH—Shell's Amebco 1, 13-4-13, td 6387 ft, abn.

EL NIDO—Shell's McKenna 1, 33-3-14, td 7352 ft, sd.

DOMINGUEZ—West American Oil Co.'s Del Amo 1, 3-4-13, 8345 wocs. Will set 8⅝-in csg.

ROSECRANS—Republic Pet. Trust 1, 18-3-13, steel rig.

NEWHALL—Yant Pet. Corp.'s No. 5, 1-3-16, td 2022 ft, wet. Stg recmtd. Well 6, rig.

NEWPORT—Commander Oil Co.'s Mesa 1, 29-6-10, wocs, td 2121 ft. Bailing gray sand.

YORBA LINDA—Continental's Carlton Com. 1, 21-3-9, td 4706 ft, sd.

WESTMINSTER—Hillman-Long's No. 1, 14-5-11, dr shell 7701 ft wocs.

SUNSET BEACH—Geo. Terry's Gun Club 1, 17-5-11, td 3200 ft, dr.

SAN BERNARDINO COUNTY — Equitable Pet. Explor. Co.'s No. 1, 11-10-5, 2347 ft, drlg. Repairing boilers.

COLORADO

ARCHULETA COUNTY—Wm. E. Hughes Estate Fee 6, nw ne se 24-33n-2e, dr 732 ft; Fee 7, ne se se 24-33n-2e, mir. Oil City Petroleum Co. & Archuleta Oil & Gas Co.'s Reeder 1, swc lot 5, sec 24-33n-2e, dr 409 ft after cementing 10-in csg at 355 ft.

LINCOLN COUNTY—Consolidated Smelting & Metals Corp.'s Hancock 1, ne sw 7-17s-52w, sd 2001 ft, lowering 8¼-in csg from 1975 ft to 2001 ft to shut off water.

PARK COUNTY—South Park Oil Co.'s Le Bert 1, ne ne nw 21-11s-75w, setting 15½-in surface pipe.

WELD COUNTY — Continental Oil Co.'s State Bank of Trenton 1, csw ne 21-8n-59w, cemented 421 ft of 16-in surface pipe.

FLORIDA

JACKSON COUNTY — Mrs. Mamie Hammonds et al's Grandberry 1, sw ne 15-5n-9w, arr deepen 240 ft.

LAKE COUNTY—Oil Dev. Co. of Fla's Gulf Expl. Co. 1, se se 17-24s-25e, elev 120 ft, no late report, last report td 3700 ft Selma chalk.

NASSAU COUNTY — St. Mary River Oil Corp.'s (J. E. Brown et al) Bank of Hilliard 1, nw nw se 19-4n-24e, dk.

POLK COUNTY—Dr. Edw. A. Hill's Polk Co. Lbr. Co. 1, nw ne 32-25s-25e, dk.

KANSAS

BARTON COUNTY—Morgan & Flynn et al's Zimmer 1, se se sw 30-19s-14w, abd 3593 ft. Noble and Atlantic's Hiss 1, cnw ne 31-20s-13w, td 3292 ft, comp. 969 bbls. Murphy & Morgan's Robinson 1, ne ne sw 21-16s-14w, adb 3492 ft. Davison et al's Birzer 1, sw se sw 22-17s-12w, sd 2495 ft. Ramsey et al's Hunt 1, nw nw nw 10-18s-11w, co 3398 ft. Buchanan & Alexander's Langford 1, ne ne sw 14-20s-11w, td 3299 ft. Schermerhorn Oil Co.'s Hunter 1, ne ne ne 29-18s-15w, running 7-in csg 3408 ft. Wakefield & Johnson's Bumm 1, sw ne ne 22-19s-12w, sd 670 ft. Rose & Lant's Redetzke 1, ne nw nw 10-16s-11w, ru. Rosespring Drlg. et al's Rick 1, sw sw sw 1-19s-11w, ru. Burton's Wendel 1, ne ne ne 13-19s-11w, sd 63 ft.

BUTLER COUNTY—Ellis et al's Pettit 1-A, se se nw 21-28s-6e, dr 1725 ft. Sanford et al's Weaver 1, se se ne 11-28s-5e, dr 2170 ft. Dalton et al's Miley 1, csw ne 17-27s-5e, ru. Rex & Morris' Olson 1, nw sw se 15-28s-6e, spd. McGinnis et al's Hinnen 1, ne ne sw 18-24s-4e, rng 5-in csg 130 ft.

COWLEY COUNTY — Roth & Faurot's Guthrie 1, se ne nw 30-33s-8e, hfw 3146 ft, pb. Cameron & Pulse's Simpson 1, cne nw 3-30s-4e, spd. Wakefield et al's Daniels 1, se sw se 3-30s-3e, dr 1090 ft. Braden Prod. Co.'s Sparks 1, se se nw 35-33s-4e, dr 1285 ft. McKnabb's Community 1, cne nw 14-34s-3e, ru. Benedum & Trees' Carson 1, sw sw nw 8-30s-4e, spd.

EDWARDS COUNTY — Stanolind-Elwell's Donovan 1, cse se 14-25s-18w, rng 8-in csg 4055 ft.

ELLIS COUNTY—Jones Bros. and Carpenter et al's Solomon 1, se se sw 28-11s-19w, ur 8-in csg 2893 ft. Brunson & Ewers-Simpson's Gross 1, ne ne sw 29-14s-17w, ur 6-in csg 3246 ft. Bridgeport Mach. and J. J. Hall's Madden Estate 1, ne nw nw 26-15s-18w, co 2505 ft. Lario O&G Co.'s Walter 1, se ne sw 2-12s-18w, cemented 8-in csg 3154 ft. Tom Palmer's Schoenthaler 1, ne ne nw 31-12s-19w, dr 3110 ft. Harris & Haun et al's Schmeidler 1, se se sw 3-13s-17w, dr 1625 ft. Yarnell & Carlson's Phillips 1, nw nw se 2-14s-18w, dr 2760 ft. Wolf Creek et al's Polifka 1, sw sw ne 24-13s-18w, cellar. Rosespring et al's Union Pacific 1, ne ne ne 9-13s-20w, set 12-in csg 150 ft, wocs. Empire's Herl 1, se se se 22-15s-19w, set 15-in csg 440 ft, co. Twin Drlg. Co.'s Copeland 1, ne ne sw 26-14s-19w, sd 1017 ft. James Brouk et al's Jacobs 1, nw nw se 31-15s-16w, rig. Parrish & Dennam's Walter 1, se sw se 14-13s-17w, dr 355 ft.

ELLSWORTH COUNTY—Empire's Kroesch 1, nw nw se 33-17s-9w, abd 3274 ft.

FINNEY COUNTY—Lone Star State Drlg. Co.'s Hamlin 1, sw sw ne 31-24s-34w, set 6-in csg 2418 ft, rust.

GRAHAM COUNTY—Vickers and Phillips' Hutton 1, ne ne se 29-8s-22w, dr 2835 ft.

GREENWOOD COUNTY—McGinnis' Dater 1, nw nw sw 11-24s-8e, dr 2420 ft; Lampe 1, nw se sw 26-24s-8e, ru.

HARVEY COUNTY—Harburney Oil Co.'s Scrag 1, nw nw se 24-22s-3w, fsg 2875 ft. Shawver's Judd 1, sw se ne 3-24s-2e, ru.

HASKELL COUNTY—Helmerich & Payne et al's Jones 1, cse 34-26s-34w, rig.

KINGMAN COUNTY—Lauck et al's Prather 1, cse 18-27s-8w, rur. Oklahoma Oil Corp. et al's Reeves 1, nw nw nw 29-27s-5w, ru.

McPHERSON COUNTY—Empire's Cunningham 1, se se se 26-18s-1w, dr 2290 ft. Johnson et al's Johnson 1, sw sw nw 33-17s-1w, dr 310 ft.

NESS COUNTY—Continental's Thompson 1, ce½ e½ sw 13-18s-26w, dr cement.

RENO COUNTY—Dickey Oil Co.'s Shepherd 1-A, ne ne nw 22-26s-9w, td 4161 ft, pb 4156 ft. Cheney et al's Moore 1, ne ne ne 14-26s-8w, dr 3850 ft. Foraker et al's Hiett 1, se sw ne 34-24s-4w, sd 2948 ft. Rosespring et al's Swanson 1, ne ne nw 1-23s-5w, rig. Graham et al's Miller 1, ne ne se 36-25s-10w, br.

RICE COUNTY—Gratton et al's Williams 1, sw sw nw 17-18s-7w, dr 3345 ft. Gilmac Oil Co.'s Sargent 1, se se se 31-18s-6w, dr 1125 ft. Dickey Oil and Continental's Newkirk 1, ne ne sw 11-18s-7w, td 3256 ft, cementing. Duwe & Schneider's Wright 1, ne ne ne 36-21s-7w, dr 3180 ft. Simpson & Noble et al's Pulliam 1, cs½ n½ ne 35-19s-8w, dr 2410 ft. Skiles et al's Stout 1, se se se 6-21s-9w, dr 2180 ft. Beardmore et al's Fuller 1, sw sw se 23-18s-7w, sd 2100 ft. Simpson-Noble and Stanolind's Bowman 1, sw sw nw 22-19s-10w, rig. Shell's Maughlin 1, ne nw se 11-20s-8w, dr 2319 ft. Shell et al's Hafferman 1, cn½ n½ se 6-19s-9w, dr 474 ft.

ROOKS COUNTY—Murfin et al's Wasthusin 1, ne ne se 12-6s-18w, dr 2805 ft. Skaer Oil Corp. & Reese's Dryden 1, ne ne ne 28-10s-17w, dr 1338 ft. Lester & Dean's Burtt 1, se se ne 29-10s-20w, sd 1279 ft. Hartman & Blair's Hall 1, nw nw nw 25-10s-17w, ru. L. C. D. Drlg. Co. et al's Westhusin 1, cne se 11-9n-17w, br. Trees Oil Co.'s Minx 1, sw sw sw 31-10s-18w, lcn. Shoemake's Stebbins 1, ne ne sw 26-7s-17w, lcn. Helmerich & Payne et al's Bedard 1, cne 29-9s-19w, br.

RUSH COUNTY—Pryor & Lockhart's Stegman 1, sw nw ne 11-16s-17w, dr 910 ft. Rosespring et al's Jacobs 1, sw se nw 8-16s-17w, 1¼ M ft gas 3560 ft. Boyle & Grossman's Wilson 1, ne ne ne 33-17s-19w, dr 1290 ft. National Ref. Co.'s Werth 1, nw ne ne 7-16s-18w, dr 3480 ft.

RUSSELL COUNTY—Berry et al's Cook 1, ne ne se 19-11s-13w, dr 3390 ft. Eisenhour & Shaffer's Humes 1, sw sw sw 6-14s-12w, dr 3137 ft. Darby and Continental's Letsch 1, se ne nw 34-14s-13w, td 3265 ft, pb. Central Pet. Co.'s Furthmeyer 1, ne ne ne 28-14s-15w, ur 6-in csg 3032 ft. Stearns & Streeter et al's John Hancock Insurance 1, se sw sw 31-12s-14w, ur 6-in csg 2965 ft. Wakefield et al's Krug 1, ne nw sw 7-15s-14w, dr 545 ft. Coralena Oil Co.'s G. M. Sellens 1, sw se sw 20-15s-13w, dr 2400 ft. Hartman & Blair's Johnston 1, nw nw nw 11-13s-14w, ru. Lario O&G Co. et al's Steinert 1, nw nw sw 21-15s-15w, mim. Reynolds' Fredrickson 1, se sw se 6-13s-12w, dr 3130 ft. Equity Gas Co.'s Harbauh 1, nw ne sw 19-13s-12w, cellar.

SALINE COUNTY—James Brouk et al's Otherander 1, ne nw se 10-16s-3w, br.

SEDGWICK COUNTY—Dickey Oil Co.'s Ayers 1, sw sw nw 12-27s-2e, sd 2915 ft. Joe Aylward et al's Harrison 1, se se sw 23-25s-2e, sd. Lauck's Parke 1, se se ne 17-25s-2e, dr 1600 ft.

SEWARD COUNTY—Helmerick & Payne's Hyde 1, csw 14-13s-34w, lcn.

STAFFORD COUNTY—Stanolind-Atlantic's Shotton 1, sw sw sw 27-22s-13w, coring 3714 ft.

SUMNER COUNTY—Helmerich & Payne et al's Elwell 1, nw nw ne 18-34s-1e, sd 4000 ft. Wilcox et al's Hess 1, se se nw 13-23s-2w, dr 4224 ft. Matthews & Derrington's Berry 1, nw nw se 14-35s-1e, dr 2565 ft. Wilson et al's Clark 1, csl nw 15-35s-1w, co 4170 ft. Craft & Wilson's Nevitt 1, ne nw ne 36-32s-2e, rng 6-in csg 2783 ft. Pryor & Lockhart et al's Knowles 1, sw sw sw 30-30s-1e, dr cement. The Texas Co.'s Reed 1, ne se se 11-31s-1w, dr 150 ft.

TREGO COUNTY — Central Commercial's Wagg 1, nw nw se 17-13s-21w, td 3972 ft, cementing core. Hall et al's Deines 1, se se se 12-13s-24w, ru.

WOODSON COUNTY—Sheedy's Baker 1, se se nw 2-26s-14e, abd 1577 ft. Mendenhall et al's Hunter 1, ne ne ne 36-25s-14e, abd 1502 ft. Foster et al's Timm 1, se nw ne 36-25s-13e, td 612 ft, pb 607 ft. Roy Johnson's Hare 1, cn½ ne 32-25s-14e, abd 1452 ft. Sheedy's Abbott 1, ne ne se 16-25s-14e, rum.

SOUTH LOUISIANA

ACADIA PARISH—Magnolia's Homeseekers 1, Esterwood prospect, sec 54-10-1w, dr hard sand 7878 ft.

ALLEN PARISH—Humble's J. A. Bell 1, Reeves prospect, sec 28-6s-7w, blew out, caught fire, cratered and abn 7770 ft.

AVOYELLES PARISH — Frost Oil Co.'s Hinds Lbr. Co. 1, n of Marksville, sec 3-3n-4e, dk.

CAMERON PARISH—Magnolia's A. Hebert 1, Big Lake, sec 13-12s-9w, dr shale 7295 ft.

EAST BATON ROUGE PARISH—Cavalier Oil Co.'s Vignes 1, ne of Nettie, sec 40-8s-3e, ru.

IBERIA PARISH—Texas Co.'s State Fausse Point 2, Fausse Point, sec 35-11s-8e, dk. Jefferson Lake Oil Co.'s Lake Pigneur 274, Jefferson Island dome, 12s-5e, sd 8610 ft.

JEFFERSON DAVIS PARISH—Shell's Lacassine 1, Hayes prospect, sec 20-11s-5w, dr shale 9573 ft. Strake Pet. Corp.'s Miller Estate 1, Woodlawn prospect, sec 7-9s-5w, dr gravel 788 ft.

LIVINGSTON PARISH—Bunte Oil & Gas Co.'s Davis 1, Demham Springs area, sec 7-7s-3e, dk.

ST. JAMES PARISH—Shell's Colonial Sugar 1, Convent prospect, sec 5-12s-5e, dr shale with streaks of lime 7161 ft.

ST. LANDRY PARISH—Limited Oil Co.'s Miller Est. 1, Cankton prospect, sec 47-8s-4e, dr shale 8045 ft.

ST. MARTIN PARISH—Texas Co.'s Lake Mongouloi 2, Lake Mongouloi prospect, sec 14-10s-9e, dr sand and shale 3981 ft; same operator's St. Martin Land Co. 8, Henderson prospect, sec 9-8s-7e, washing 6377 ft.

VERMILION PARISH—Continental's O. C. Hebert 1, Abbeville prospect, sec 20-12s-3e, dr shale 7484 ft.

NORTH LOUISIANA

BIENVILLE PARISH — Rondeau et al's Locke 1, ne nw ne 9-15n-10w, elev 180 ft, rur. Walters et al's Davis 1, 3-16n-9w, mim.

BOSSIER PARISH—Bowman-Tidwell's Nattin 1, 15-22n-14w, sd 1408 ft. Producers O&G Co.'s J. A. Skannal Est 1, frac sw sw 22-17n-12w, rur. United Gas Pub. Serv. Co.'s Skannal Est. D-1, se ne 22-17n-12w, spd.

CADDO PARISH — Pyramid O&G Co.'s Wheeler A-1, 16-18n-16w, elev 250 ft top anhydrite 3783 ft, base massive anhydrite 4704 ft 9⅝-in csg 3950 ft pb to 4850 ft, 7-in csg 4804 ft woc td 5210 ft. Forbing-Persian Oil Co.'s Cupples 1, 24-16n-13w, rur. Henderson et al's Fee 1, 5-19n-15w, rur.

CATAHOULA PARISH — J. Ray McDermott's Central Lbr. Co. 1, nw nw 15-10n-5e, rur. (formerly carried Catahoula Lake 1).

CALDWELL PARISH—Critchett & Wood's La. Cent. Lbr. Co. 1, 18-11n-3e, sd 1280 ft. Scott et al's Taylor 1, 20-14n-4e, dk.

CLAIBORNE PARISH—Sugar Creek Synd's Darrett 2, 31-20n-5w, core 7008 ft, elev 324 ft. E. T. Oakes et al's Patton Est. 2, 1-20n-5w, dr 2400 ft chalk.

DE SOTO PARISH—Tarbud Oil Co.'s Caddo Realty 1, nwc 2-13n-16w, claim so 2879 ft arr ds test. Jas. E. Carlson's Garland 1, nw nw 7-14n-14w, mim.

FRANKLIN PARISH—S. C. Jensen's Bailey 1, 12-11n-6e, sd repr rig 1435 ft.

GRANT PARISH — Tri-State Dev. Co.'s Ethridge 1, ne ne 19-7n-3e, dk & mir.

JACKSON PARISH—Zeigen et al's La. Cent. Lbr. Co. 5, ne nw 13-14n-2w, owdd, 1770 ft.

LINCOLN PARISH — Lide & Greer's S. Gardner 1, 10-17n-4w, core 5901 ft lime & shale.

MOREHOUSE PARISH—Henry E. Rondeau et al's Clark 1, se ne 10-20n-7e, elev 90 ft, rur.

RAPIDES PARISH—Texas Eagle Oil Corp.'s State 1, tested 30 to 40 mi ft gas woc td 5703 ft. Texas Co.'s Weil 1, 53-1s-2e, dr 650 ft.

RED RIVER PARISH—I. J. Allen's Franklin Realty Co. 1, ne ne 20-11n-9w, dr 2880 ft. H. D. Conley et al's Long-Bell 1, ne ne 19-13n-9w, rur. T. B. Shaw et al's Teekel 1, 34-13n-10w, claim gas blowout 1950 ft killed, dd.

SABINE PARISH—Keen et al's Long-Bell 1, 5-8n-13w, rur. Whitehurst et al's Whitney Corp. 1, nw ne 8-9n-13w, dr 2680 ft. A. H. Tarver's Baker 2, 36-8n-12w, elev 347.5 ft top Zwolle marl 2205 ft, fsh td 5225 ft. Claude H. Smith et al's Whitney Corp. 1, 19-10n-13w, did not make dst, sd 3053 ft.

TENSAS PARISH — H. M. Jones' Chicago Mill & Lbr. Co. 1, nw sw nw 29-12n-10e, base Jackson 776 ft setting 8⅝-in csg td 779 ft. Clara Nook Plant. 1, nw sw 33-12n-10e, rur.

NEW MEXICO

LEA COUNTY—Amerada's C. H. Weir 1-B, c sw ne 26-19s-36e, elev 3675 ft, td 4030 ft, shot 320 qts nitro at 3840-4000 ft, flowing and testing. Barney Cockburn & Rowan-Nichols Oil Co.'s H. G. Mattern 1, c sw se 7-22s-37e, elev 3426 ft, dr 1950 ft. C. & G. Oil Co.-The Texas Co.'s Ellen Weir 1, c ne ne 14-20s-37e, elev 3564 ft, top anhydrite 1348 ft, dr 3640 ft. Conoco & California Co.'s E. M. Elliott 1, c sw sw 22-22s-37e, elev 3347 ft, dr 3490 ft; Elliott 1-A-15, se se se 15-22s-37e, lcn; Elliott 1-A-21, c se se 21-22s-37e, lcn; Ira C. Farney 1, c sw se 5-23s-36e, lcn. Culberson, Erwin & Stovall's J. B. Humphreys-Humble 1, c se sw 3-25s-37e, elev 3135 ft, top anhydrite 1030 ft, top salt 1124 ft, spraying oil with gas, td 3702 ft, testing; J. R. Stuart-Repollo 1, c sw se 10-25s-37e, elev 3105 ft, top anhydrite 1035 ft, salt series 1250-2405 ft, top lime 2430 ft, pay 3280-94 ft, complete flowed 139 bbls 40° oil two hrs via ¾-in choke on tubing. Gulf Oil Corp.'s S. J. Carr 1, c nw sw 3-24s-36e, dr 500 ft; E. A. King 1, c sw nw 28-21s-37e, elev 3469 ft, dr 2600 ft; F. C. King 1, c sw nw 5-23s-37e, lcn; Frona Leck 1, c nw ne 14-21s-36e, elev 3578 ft; dr 3600 ft; L. M. Buffington 1, c nw sw 13-25s-37e, dr 1000 ft; W. T. McCormack 1, c ne ne 32-21s-37e, elev 3464 ft, dr 1700 ft; A. B. Reeves 1, c nw sw 29-20s-37e, elev 3529 ft, td 3844 ft, used 1000 gals acid, testing; J. A. Stuart 1, c sw ne 10-25s-37e, elev 3120 ft, dr 350 ft. Humble's W. B. Farrell 1, c sw se 22-22s-37e, elev 3341 ft, dr 1200 ft; G. B. Hadfield 1, c nw se 21-25s-37e, elev 3082 ft, dr 1990 ft; J. T. Lanehart 1, c ne sw 21-25s-37e, elev 3068 ft, dr 1450 ft. Landreth Prod. Corp.'s E. H. Grizzell 1, c se sw 5-22s-37e, elev 3437 ft, dr 1500 ft. Liberty Oil & Drl. Co.'s J. F. Hair-Repollo 1, sw sw se 24-24s-37e, elev 3157 ft, sdo 3702 ft. Magnolia's Will Cary 1, c ne se 21-22s-37e, elev 3361 ft, top anhydrite 1108 ft, dr 1580 ft; E. A. Carson 1, c nw sw 28-21s-37e, dr 1345 ft. Maljamar O&G Corp.'s M. E. Baish 6, c nw se 21-17s-32e, Maljamar area, elev 4028 ft, pb fr 4129 to 3950 ft, used 4000 gals acid, testing. Ohio Oil Co.'s W. H. Turner 1, c ne se 29-21s-37e, elev 3477 ft, dr 3150 ft. N. G. Penrose & Rowan-Nichols Oil Co.'s Will Cary-Humble 2, c ne sw 22-22s-37e, elev 3345 ft, dr 3500 ft; Cary-Humble 3, c se nw 22-22s-37e, elev 3364 ft, sd 1150 ft; Cary-Humble 4, c sw nw 22-22s-37e, cem 8¼-in cas 1146 ft. Plains Prod. Co.'s R. L. Mosley-Repollo 1, c nw se 34-24s-37e, elev 3168 ft, top anhydrite 1000 ft, sul w at 3550-51 ft, pb to 3530 ft, flows by heads; Geo. Smith-Humble 1, c se se 4-25s-37e, elev 3174 ft, tested water at 3463 ft, dr 3605 ft. Repollo Oil Co.'s E. H. Bolding 1, nw nw nw 10-20s-37e, elev 3551 ft, dr 4130 ft; M. J. Boyd 1, swc n½ 23-22s-37e, elev 3337 ft, swabs and flows 45 bbls oil 15 hrs td 3700 ft; R. M. Jones 1, nw se nw 35-22s-36e, elev 3526 ft, logging gas pay, dr 3404 ft; J. T. Lanehart 1, se nw nw 28-25s-37e, elev 3028 ft, dr 1000 ft; W. C. Roach 1, nw nw nw 21-20s-37e, elev 3530 ft, swab and flow 50 bbls oil 18 hrs at 3830 ft, used 5000 gals acid, testing; Frances Stuart 1, se nw se 10-25s-37e, elev 3114 ft, sp; J. H. Williams 2, sw sw se 33-19s-37e, elev 3568 ft, salt series 1435-2515 ft, flowed 192 bbls oil 24 hrs one-inch choke from lime 3898-3911 ft, td 3915 ft. Samedan Oil Corp.'s Marshall 1, c sw nw 12-21s-36e, cem cas 250 ft; C. U. Parks 1, sw sw sw 14-22s-37e, elev 3339 ft, dr 3530 ft. Skelly Oil Co.'s Baker 2, c nw nw 27-22s-37e, dk; Ellen Sims 1, c nw se 3-23s-37e, dk; Stuart 1, c ne nw 15-25s-37e, lcn. Sun Oil Co.'s B. T. Lanehart 1, c se se 20-25s-37e, elev 3042 ft, top anhydrite 971 ft, top salt 1145 ft, dr 1250 ft; A. D. Richards 1, c ne se 6-23s-37e, elev 3376 ft, top anhydrite 1215 ft, base salt 2610 ft, shot 230 qts at 3635-3798 ft, swabs 2½ bbls fluid, 50 percent water, per hr, testing; J. R. Stuart 1, c nw ne 15-25s-37e, elev 3115 ft; base salt 2442 ft, main pay 3338-44 ft, td 3380 ft, swabs 35 bbls oil daily; W. W. Weatherly 1, c ne sw 17-21s-37e, elev 3485 ft, top anhydrite 1335 ft, salt series 1350-2486 ft, so&g 3702-25 ft, td 3815 ft, used 4000 gals acid, complete flows 36 bbls oil daily. The Texas Co.'s W. T. Lanehart 1, c ne¼ 29-25s-37e, elev 3031 ft, top anhydrite 965 ft, base salt 2335 ft, cementing off gas, td 2788 ft. Tide Water's Anna Walden 1, c se ne 21-22s-37e, elev 3352 ft, dr 1050 ft.

OKLAHOMA

ATOKA COUNTY—Riverland O&G Co.'s Jones 1, sw sw ne 4-3s-9e, fsg 1740 ft.

BECKHAM COUNTY—Jo-Gail Drlg. Co.'s Gilliland 1, cne ne 33-8n-26w, lcn. Wood Pet. & Royalty Corp.'s Blair 1, nw nw se 32-9n-26w, abd 2989 ft.

CARTER COUNTY—Carter et al's Leon Voorhees 1, cse sw 34-5s-2w, dr 5262 ft. Hammond's Lile 1, sw se se 8-5s-1e, dr 200 ft.

CLEVELAND COUNTY—Sinclair Prairie et al's Franklin 1, se nw se 21-10n-2w, td 7291 ft, ru to dd.

COAL COUNTY—Shell's Hill 3, se se nw 30-3n-10e, dr 6263 ft.

COTTON COUNTY — English Drlg. Co.'s Wilson 1, nw nw se 7-4s-11w, sd 1514 ft.

GARFIELD COUNTY—Sherry et al's Hoken 1, nw nw sw 32-20n-4w, dr by 6202 ft. Stanolind-Amerada's Brunken 1, sw sw ne 32-23n-4w, sd 6051 ft.

GARVIN COUNTY—Carter et al's Wood 1, nw sw se 5-4n-3e, dr 2360 ft. McElreath & Suggett's Lasater 1, se se sw 2-2n-1w, rig, digging pits.

HARMON COUNTY—Lioalko Trust Ltd's Crasnoe 1, se se sw 14-3n-25w, sd 2263 ft.

HUGHES COUNTY—Phillips' Eberle 1, ne ne sw 12-5n-9e, dr 5102 ft. Sivils et al's Montgomery 1, nw sw nw 7-9n-9e, dr 3230 ft. Blackwell O&G Co.'s Long 1, se ne nw 29-9n-9e, hfw 1215-1235 ft.

JACKSON COUNTY—Jackman's Fee 1, sw sw sw 27-1s-24w, fsg 2685 ft. Burnham-Oliver 1, nw nw se 26-1s-20w, sd 1685 ft. Universal Oil Co.'s Briscoe 1, nw sw ne 36-1s-20w, sd 3004 ft. John Dickson et al's Wright 1, ne nw se 19-1n-19w, rur. Pioneer O&G Co.'s Rawls 1, sw nw ne 26-1s-20w, sd 26 ft.

JEFFERSON COUNTY—Campbell's Trout 1, se ne ne 6-8s-7e, sd 2560 ft. Pearson et al's Douthitt 1, ne ne ne 24-6s-9w, material on ground.

JOHNSTON COUNTY — Moore & Wirick's Westheimer & Daube 1, se nw ne 19-3s-4e, dr 3980 ft. Magnolia's Green 1, ne ne ne 12-2s-7e, sd 2535 ft.

KAY COUNTY—Allen and Texas Co.'s Fulton 1, se se se 18-27n-4e, dr 850 ft.

KIOWA COUNTY—Beeler & Klein's Parrish 1, se se nw 3-6n-15w, rig. Atlantic's Ta-Home 1, ne nw ne 24-7n-16w, dr 1105 ft. DeBolt et al's Burnett 1, nw se ne 30-7n-20w, lcn. Hooser's Sonomaker 1, se sw sw 24-7n-21w, dr 420 ft.

LINCOLN COUNTY—Amerada et al's Zimmerman 1, sw sw ne 10-12n-5e, rur. Mid-Continent and Texas Co.'s Hillman 1, sw se ne 29-13n-6e, rig.

LOVE COUNTY—Sinclair Prairie's Stockton 1, se se sw 26-6s-2w, dr 8420 ft. Amerada-Stanolind's Westheimer & Daube 1, sw se sw 27-6s-2e, bailing 6200 ft.

MARSHALL COUNTY — Helmerich & Payne's Taliaferro 1, nw se sw 26-5s-5e, rig.

McCLAIN COUNTY — Arab Pet. Corp.'s Autry 1, nw nw nw 16-7s-3w, td 8665 ft.

McINTOSH COUNTY—I.T.I.O. Co.'s Toncred 1, sw nw se 9-9n-14e, pb 3272 ft, wocs. Dieckman's McIntosh 1, se se se 4-12n-17e, sd 100 ft.

NOBLE COUNTY—Continental's Bruitt 1, nw se sw 19-20n-1w, pb 5115 ft, 1000 gals acid. Stanolind-Amerada's Gilham 1, ne se se 14-22n-1e, lcn.

OKFUSKEE COUNTY—Champlin Ref. Co.'s Thompson 1, sw sw nw 7-13n-8e, fsg 1147 ft. Amerada-Stanolind's Wells 1, sw sw nw 7-11n-7e, dr 3985 ft.

OKLAHOMA COUNTY—Hollenbach et al's Cooper 1, nw nw ne 15-11n-1e, dr 6235 ft. O'Shaughnessy, Inc.'s Berlowitz 1, se sw ne 9-12n-3w, cellar cemented.

OSAGE COUNTY—Elfred's Beck 1, se se ne 6-23n-7e, sd 2581 ft. Midco et al's 1, nw nw se 11-23n-6e, dr 1850 ft. Champlin Ref. Co.'s 1, sw sw ne 32-25n-6e, ur 8-in csg 2085 ft. Gray & Tolson's 1, sw sw ne 33-25n-7e, dr 525 ft.

PAYNE COUNTY — Amerada-Stanolind's Pratt 1, se se se 29-19n-5e, rig.

PONTOTOC COUNTY—Sandback et al's Sands 1, ne ne ne 20-3n-5e, co 415 ft. Southard & Miller's Wilson 1, nw se sw 26-4n-5e, spd & sd.

SEMINOLE COUNTY — Arkansas Royalty Co.'s Kiker 1, se se ne 9-10n-7e, spd & sd. Tom Phillips and Kimraw Drlg. Co.'s Cheparney 1, se se nw 7-6n-7e, rig. Wilson & Reynolds Drlg. Co.'s Casey 1, sw ne ne 25-6n-7e, dr 2250 ft.

STEPHENS COUNTY—Endicott et al's McFatridge 1, nw nw sw 11-3s-9w, ur 6-in csg 1360 ft. McCasland's Parker 1, ne ne sw 2-1n-6w, rng core bbl 2212 ft.

TILLMAN COUNTY—Gulf's Wearmouth 1, se nw se 31-1s-16w, dr 4533 ft. Johnson, Young & Mitchell's Donahoe 1, se nw nw 7-4s-17w, dr 1040 ft. Smith's Hammill 1-A, ne nw nw 6-5s-15w, sd 1125 ft. Gulf et al's McWilliams 1, nw sw sw 15-3s-17w, rig. Bernheim's Tate 1, ne ne nw 16-1s-19w, lcn. Shirley Clum et al's Moriele 1, nw nw se 16-4s-14w, rur.

TEXAS GULF COAST

BRAZORIA COUNTY—Gulf's Fairfield 1, Lockridge prospect, A. Robeson sur, fsh for dr pipe 6259 ft. Texas Gulf Prod. Co.'s Sparks 1, Angleton prospect, Wm. Roberts sur, dr shale 6998 ft. Strake Pet. Corp.'s Poole 1, Poole Ranch prospect, W. Eggers sur, hole cleaned to 6100 ft.

CHAMBERS COUNTY—Glenn H. McCarthy's A. Pitt 1, Winnie prospect, J. M. Duran sur, abn 8006 ft.

GALVESTON COUNTY — Sun's J. E. Hughes 1, Green Lake prospect, W. C. M. Baker sur, abn 9636 ft.

GRIMES COUNTY—Crooke Bros. et al's W. W. & J. E. Greer 1, near Carlos, P. B. Connor sur, dr shale 2701 ft.

HARDIN COUNTY—David B. McDaniels' Nona Mills 1, Grigsby prospect, E. Emanuel sur, dr shale 7665 ft. Resource Prod. Co.'s C. W. Howeth 1, sw of Arriola, A. J. Cotton sur, sd 4357 ft. Republic Prod. Co.'s Burrell 2, Silsbee prospect, A. A. Burrell sur, ru.

HARRIS COUNTY—Amerada-Stanolind's L. Dopsalus 1, Fairbanks-Satsuma prospect, W. C. R. R. sur, blk 1, sec 2, coring shale 6869 ft. Bunte et al's Lobit 1, Cedar Bayou prospect, B. Barrow sur, dk.

JEFFERSON COUNTY—Magnolia's Funchess 1, Cheek prospect, H. & T. B. sur No. 16, dr shale 8347 ft. Sun's Hebert Broussard 1, Labelle prospect, B. Blackmon sur, dr shale 8649 ft. Shell's Carpenter 1, Nome prospect, M. Pevota sur, ru.

LIBERTY COUNTY—Atlantic & Brace's E. E. Hardy 1, Hardin area, J. Robeson sur, pb to 7400 ft, woc.

MATAGORDA COUNTY — Helmerick & Payne's Hawkins 1, Sheppards Mott area, D. A. McCarthy sur, set 5-in csg 3746 ft, woc. Sun's Craig 1, e flank of Hawkinsville dome, T. Williams sur, woc 5800 ft, will perforate.

MONTGOMERY COUNTY—H. W. Blumenthal's Delta Land Co. 1, Dacus prospect, J. Beuhn sur, dr shale 1971 ft. Tide Water's Corbitt 1, Splendora, J. J. Blackmon sur, dr shale 5308 ft.

POLK COUNTY—Dick Schwab's Kirby Lbr. Co. 1-A, Ace area, T. A. Sublett sur, dr shale 4060 ft.

SAN JACINTO COUNTY—G. Gholson & L. Decker's Randolph 1, Evergreen area, V. Flores sur, ru.

WALKER COUNTY—Boone Brothers et al's Thompson Bros. Lbr. Co. 1, w of Trinity, J. Ortego sur, mim.

WASHINGTON COUNTY—Sun's Lauter 1, Clay Creek, se flank, N. Clay sur, dr shale 4892 ft.

WHARTON COUNTY—Pure's E. Paige 1, Blue Basin prospect, J. Pirie sur, cutting & pulling 7653 ft. A. C. Roan's E. Oswald 1, Leach prospect, E. T. R. R. sur, sec 61, lcn. Sterling's A. Genzer 1, East Bernard prospect, J. Scott sur, dr shale 6745 ft. Smith & McDannald's Presmeyer 1, Lakeview prospect, H. & T. C. sur, sec 10, dr clay 600 ft.

EAST TEXAS

ANDERSON COUNTY—Gulf Oil Corp.'s M. J. Ross 1 (54.7-ac), Robt. Erwin sur, Camp Hill area, elev 487 ft, top Georgetown lime 5452 ft, co td dd fr 5476 ft. Tide Water & Seaboard Oil Corp.'s J. B. Edens 15 (988.6-ac), Samuel Snider sur, Cayuga field, Trinity sand test, rur.

BOWIE COUNTY—Ben J. Russell et al's O. A. Hall 1, J. W. Weaver sur, 9 mi sw New Boston, elev 316 ft, top Annona chalk 1646 ft, sd 3424 ft. Westmount Oil Co.'s et al's R. N. Phillips 1 (115-ac), J. N. Hancock sur, 10 mi n Oak Grove, rur. Woodley & Bentley's J. D. Lumpkin 1 (245-ac), John McDermott sur, 1¼ mi sw Dalby Springs, elev 290 ft, Annona chalk 1665-2090 ft, sd 3260 ft.

CASS COUNTY—American Liberty Oil Co.'s D. A. Maxcy 2 (86-ac), John Collum sur, elev 265 ft, Annona chalk 1989-2621 ft, top Red Beds 3450 ft, top anhydrite 5103 ft massive anhydrite 5272-5625 ft, top Hill sand 5653 ft, dr 6035 ft; Maxcy 3, elev 264 ft, top Annona 1950 ft, top Red Beds 3485 ft, top anhydrite 5081 ft, top massive anhydrite 5665 ft, dr 5850 ft; Maxcy 4, elev 294 ft, top Annona chalk 1982 ft, dr 2200 ft. McElvain & Beckett's D. A. Maxcy 1, B. J. Murray sur, elev 235 ft, top Red Beds 3435 ft, top anhydrite 5066 ft, top massive anhydrite 5333 ft, dr 5660 ft. Magnolia (was R. W. Norton, Tr's) L. A. Haywood 2 (440-ac), P. Evans sur, elev 255 ft, Annona chalk 2014-2485 ft, top Red Beds 3422 ft, top anhydrite 5078 ft, dr 5250 ft. Marathon Oil Co.'s R. P. Willis 1, S. F. & I. W. sur, mim. The Texas Co.'s E. E. Hall 1 (60-ac), Jas. Young sur, elev 299 ft, top Annona chalk 2050 ft, top Red Beds 3477 ft, dr 5100 ft; Hall 2, mim. United Prod. Corp.'s Eva Fields 1 (61¾-ac), John Collum sur, elev 252 ft, Annona chalk 1948 ft, dr 5500 ft; Fields 2, elev 268 ft, Annona chalk 1991-2458 ft, top Red Beds 3470 ft, dr 5000 ft; Fields 3, elev 272 ft, Annona chalk 2020-2514 ft, top Red Beds 3495 ft, dr 4650 ft; F. S. Simpson 1 (160-ac), Jas. Young sur, elev 299 ft, top Annona chalk 2048 ft, dr 3200 ft; J. T. Stewart 1 (49-ac), John Collum sur, elev 231 ft, base Annona chalk 2520 ft, top Red Beds 3423 ft, dr 5150 ft. G. H. Vaughn Prod. Co.'s R. P. Willis (67-ac) 1 to 9, lcns.

CHEROKEE COUNTY — Humble's Sam D. Goodson 1 (55.42-ac), Isaac Reynolds sur, 1½ mi ne Ironton, elev 428 ft, Pecan chalk 3590-4052 ft, Austin chalk 4552-4764 ft, top Woodbine series 4820-78 ft, tested sw, dr 5280 ft.

FRANKLIN COUNTY—Lucey Pet. Co. et al's A. W. Crawford 1 (25-ac), O. James sur, elev 371 ft, Pecan chalk 1593-1800 ft, top Georgetown lime 3515 ft, top Paluxy series 4121 ft, top pay 4132 ft, td 4297 ft, flowed 104 bbls 24.5° pipe line oil one-hr open cas gauge, later flowed 620 bbls 10 hrs open 2½-in tubing; Crawford 2, rur.

FALLS COUNTY—J. Edward Mills et al's Sam Grucholski 1 (40-ac), Dennis Herold League, 5 mi sw Kosse, sp and sd.

FANNIN COUNTY—E. V. Abernathy and A. F. Carter's G. D. Galloway 1 (320-ac), W. M. Rice sur, top Georgetown lime 1697 ft, dr lime 2230 ft.

FREESTONE COUNTY — Roger Stewart & Watson's Trinity Farm Securities Co. 1 (45-ac) R. M. Williamson sur, Cayuga area, elev 252 ft, Pecan chalk 2240-2470 ft, Austin chalk 3175-3605 ft, top Woodbine series 3976 ft, no shows oil and gas, sd 4039 ft.

GRAYSON COUNTY—Olson Drl. Co.-James H. Gardner et al's SW Life Insurance Co. 1 (160-ac), J. C. Jamison sur A-865, 3 mi n Pottsboro, elev 767 ft, top Sylvan shale 4870 ft, Viola lime 4901-5096 ft, pb fr 5890 to 5550 ft, co heaving shale. Port Bolivar O&R Co.'s Taylor 1 (160-ac), J. Fitzhugh sur, 3 mi se Gunter, sd 3931 ft.

HENDERSON COUNTY—H. W. Wilson et al's fee 1 (943-ac), Thomas Caro sur, 5 mi n Malakoff, elev 359 ft, jkd and abd, td 2800 ft.

HOUSTON COUNTY—Branch et al's P. S. Griffiths 1, Frank Johnson sur, 3 mi sw Crockett, mim. Ellison & McBride's J. E. Bean 1 (40-ac), Eli Stedman sur, 1½ mi nw Grapeland, rig.

KAUFMAN COUNTY—J. M. Scott & J. B. Woodside's E. Robinson 1 (80-ac), A. Chirnio sur, 2 mi w Scurry, dr 815 ft. R. P. Lester & Colton's Barrow Bros. 1 (40-ac), J. D. Taylor sur, rur for 6000-ft test. C. C. Pearson et al's G. W. Martin 1 (100-ac), W.F.C. Butler sur, elev 429 ft, dry and abd 2200 ft.

LAMAR COUNTY—Barrett, Saloman & Brooks' Haynes-McCuistion 1 (25-ac), A. W. Wright sur, 4 mi ne Garrett Bluff, Georgetown lime 275-738 ft, top Paluxy series 739 ft, sd 1900 ft. J. A. Forester et al's J. S. Woodward 1 (183¼-ac), J. W. Woodward sur, 1½ mi e by s of Minter, elev 402 ft, top Georgetown lime 2256 ft, Paluxy sand with trace gas 3060-3144 ft, top Anhydrite 3735 ft, base hard Anhydrite 4075 ft, broken to 4105 ft, sd 4516 ft.

LIMESTONE COUNTY—Dan H. Daugherty et al's Sallie Welch 1 (94-ac), Pedro Varella sur, 4 mi w Groesbeck, Austin chalk 2350-2650 ft, top Woodbine series 2890 ft, rur to dd, td 3131 ft. C. F. Lytle et al's J. L. Thompson 1-T (141-ac), w side Mexia field, elev 459 ft, cem 7-in cas 6002 ft, td 6065 ft, tested hot salt w, will pb and test Glenrose lime and sand section.

MORRIS COUNTY—Raycotuck, Inc.'s P. M. Staggers 3 (40-ac), J. D. Nelson sur, elev 369 ft, pb fr 4139 to 1500 ft account crooked hole, Pecan chalk 2490-3135 ft, top Woodbine series 4220 ft, top Red Beds 4330 ft, top Georgetown lime 4565 ft, dry and abd 4566 ft. Steve J. Rontondi et al's Smith 1 (50-ac), M. C. Vela sur, elev 429 ft, dry and abd 4005 ft.

NAVARRO COUNTY—Wm. A. Reiter et al's T. W. Bounds 2 (300-ac), H. Shelton sur, 1 mi sw Currie, elev 407 ft, Austin chalk 2593-2960 ft, top Woodbine series 3399 ft, salt w sand 3429-3465 ft, dry and abd. E. M. Thomason & Co., Inc.'s Estes Bros. 2 (58.2-ac), Wm. Gilbert sur, 1 mi e Roane, rig.

RED RIVER COUNTY—J. S. Abercrombie Co.-Harrison Oil Co.'s Southern Pine Lbr. Co. 1 (392.37-ac), D. D. Bruton sur, 12 mi ne Clarksville, elev 407 ft, dr lime 1250 ft. Annona O&G Co.'s Leo & Otto Roberts 1 (200-ac), Jas. Bankston sur, 2 mi ne Annona, elev 396 ft, Pecan chalk 40-380 ft, sd 725 ft. R. H. Manning and Texfornia Co.'s Hocker-Hughes 1 (80-ac), MEP&P Ry sur No. 642, 6 mi sw Lydia, sd 200 ft.

ROCKWALL COUNTY—W. H. Carlin et as'l W. H. Lofland 1 (54-ac), M. B. Jones sur, ¾ mi w Rockwall, sd 104 ft. R. J. Sherman & Dodd's M. F. Lofland 1 (392-ac), W. M. Beard sur, 2½ mi se Rockwall, sd 750 ft.

RUSK COUNTY — Pure Oil Co.'s W. H. Faulkner 1 (60-ac), Wm. Elliott sur, 5 mi e Mount Enterprise, Trinity sand, or 8500-ft test, elev 563 ft, Pecan chalk 2650-2890 ft, show gas when cut through fault at 2599-2609 ft, Austin chalk 3286-3450 ft, top Georgtown lime 3446 ft, top anhydrite 5325 ft, base 5330 ft, dr hard lime 5570 ft.

TITUS COUNTY—Jule Alford, Tr et al's J. E. Fry 2 (47.48-ac), Isaac P. Stern sur, about 1200 ft ne Fry 1, jkd test, elev 333 ft, rur. Humble's M. B. Groves 1 (82.9-ac), Ben Jones sur, elev 309 ft, Pecan chalk 1591-1733 ft, Eagleford shale 2862-3240 ft, top Woodbine 3240 ft, top Red Beds 3590 ft, top Georgetown lime 3991 temp abd, td 4492 ft. C. M. Joiner Leasing Corp.'s Huensch 1 (1416-ac), Henry P. Banks sur, 12 mi e Talco, elev 317 ft, Pecan chalk 1896-2122 ft, broken to 2398 ft, top Georgetown lime 4220 ft (corrected), dry and abd in lime 4644 ft. Magnolia's C. M. Carr 1 (70-ac), M. V. Delgado sur, elev 371 ft, Pecan chalk 1634-1790 ft, top Austin chalk 3010 ft, Georgetown lime 3952-3979 ft, top Fredericksburg shale 3979 ft, dr white lime 4178 ft with cable tools. B. C. Morrison et al's Lewis Sanders 1, c lot 1, blk 30, Talco townsite, elev 371 ft, dk. Red Iron Drl. Co.-Dean & Adkisson's A. Cornelius 1 (3-ac), M. V. Delgado sur, mim. Saunders and Murchison (was Nemo Oil Co.), Talco Independent School 1 (5-ac), I. P. Stern 1, elev 372 ft, top Georgetown lime 3444 ft, dr lime 3470 ft. Haynes B. Owenby Drl. Co. et al's Joe Easterling 1, c lot 6, blk 16, Talco townsite, elev 361 ft, Pecan chalk 1628-1785 ft, dr 2000 ft. Tide Water's C. M. Carr 1 (72-ac), M. V. Delgado sur, elev 358 ft sp.

VAN ZANDT COUNTY—A. W. Walker, Jr., et al's H. V. Whittaker 1 (280-ac), Tyre Buckley sur, 2 mi n Grand Saline, dr 500 ft.

HARRISON COUNTY — Bridwell et al's Clapp 1, F. C. Baker sur, spd 16-in csg 300 ft woc.

PANOLA COUNTY—Logansport Pipe Line Co.'s Rushing 1, Manning Smith sur, base Annona chalk 1834 ft sd 2048 ft.

SABINE COUNTY—L. D. House et al's Bell 1, D. McDonald sur, sd 1850 ft

SHELBY COUNTY—O. D. Clark Dev. Co.'s C. H. Horton 1, J. Bowlin sur, sd 1850 ft. Mulroy & Curtin's C. Hayden 1, D. F. Yordt sur, mim. Potter & Rubeling's H. O. Polley 1, Wm. Whisner sur, arr deepen 3140 ft. H. A. Stebbinger's Pickering Lbr. Co. 1, C. F. Henry sur, arr deepen 3905 ft.

SOUTH TEXAS

ARANSAS COUNTY—Buckingham Oil Co.'s McCampbell 1, lots 8 & 9, sec 41; lots 8 & 9 sec 42, McCampbell subd, James Orick sur, 2 mi nw of Aransas Pass, 8 ft fr San Patricio County lines, sands showed on electric formation test from 5425-7120 ft 6534-46, 6819-24, 6900-07, td 7501 plugged back to 6545 ft, blew out while making dst, showed 2250 lbs pressure wet gas, oil from pits tested 25.5 grav., attempting to remove drill pipe, recovered 3510 ft of ds.

ATASCOSA COUNTY—R. C. Lee, Trustee, U. A. Doumch 1, 152-ac tr, blk 10, J. T. Russell sur No. 1222, 3 miles n Poteet, td 3521, ran electric formation test, sd for csg. W. B. Hinton's Weigand 1, in Donovan sur No. 124, 14 mi e Campbellton, lcn.

BASTROP COUNTY—Howell & Appleton's Herman Klemm 1, Richard Teal sur, sd 1229 ft. Marts & Beavens' Parkford & Jenkins 1, center lot 24, Bastrop Town tr, td 650 ft, in fresh water sand, flowed 75,000 bbls water day. J. E. Mills' C. O. Randle 1, 100-ac tr, B. Brymer sur, 4 mi se Cedar Creek field, td 2266 ft, set 5-3/16-in csg at 2228, re-acidized and sd.

BEE COUNTY—Geo. M. Church et al's G. A. Ray 1, Anna Burk sur, 2 mi e Beeville, drlg 4220 ft. Fred Haworth, Jr.'s J. E. Copeland 1, Obed Marshall sur, 3½ mi nw Pettus, coring 3473. dst of sand 3465-71, 12 min show 350 lbs gas slight show of sw. Howeth & Swiger's C. A. Voss 1, Samuel May sur, ab 230, 2¼ mi sw West Tuleta field, bldg dk. Marine Oil Corp.'s J. C. Woods 1, 427-ac tr, T. Ryan sur discovery well, Beeville field, td 5831 ft, reinstate to rework, now ru. Nichols & Quinn's J. R. Scott 1, blk 7, Howeth & Swiger subd, Uranga Gr, mim. H. A. Pressev's R. T. Hicks 1, 1120-ac tr, Jose M. Uranga Gr, ab 568, 4½ mi s of Normana, sand 3482-87, broken sand, shale and shells 3487-3502, 12 min dst 3482-3502, show 350 lbs dry gas, 90 ft mud, cored ahead to 3568 and reamed to 3526, tested 3526-68 show 2 fourbles mud and very little gas.

BEXAR COUNTY—American Gas Co.'s Oliver No. 5, 400-ac tr M. F. Rodriguez sur, Gas Ridge, ran 5-3/16-in csg to 2990 ft. Carter & Ingersoll's Louis Mann 1, 60-ac tr, John Christopher sur, 3 mi s Von Ormy, sd 1028 ft in Taylor, will dr to Austin chalk. Joe Deupree's Mrs. R. S. Nina (R. S. Coffey) 1-A, Rodriguez sur, 7 mi s San Antonio, td 1200 ft, testing; S. G. Winter 1, 100-ac tr in Fernando Rodriguez sur, one mi w of Russell 1, sd 1425 ft. Nick Morosis' T. O. de Ruiz 1, F. Rolen League and Labor sur No. 48, just s of Von Ormy, dr 500 ft. H. J. Moore's Mrs. Lena Eisenhauer 1, 80-ac tr in Gertrude Rodriguez sur, 9 mi ne of San Antonio, dr 871 ft in Taylor. O. M. Owensby's Minna Coreth 1, 284-ac tr, Adam Stafford sur No. 49, e Eckert field, still sd 1091 ft. W. H. Schaeffer Co.'s A. Mihaliski 2, 98-ac tr, J. M. Bustillos sur, 1 mi n St Hedwig, td 850 ft in shale, temp abnd. H. B. Schumacher's Hilda Gillette 1, 49-ac tr, M. G. de Alamiz sur No. 20, 7 mi s San Antonio, sd 708 ft changing from spudder tools to cable tools. F. M. Shaver's A. W. Bitter 2, Jose Baerrera sur No. 58, 2 mi nw Von Ormy, td 1008, cored 980-1008, got 2 ft saturation going in for another core. Fred Thorman's A. L. Salm 1, 330-ac tr, Hays sur No. 3, 2 mi s Martinez 1 drlg 700 ft. R. P. Whitfield et al's Co. John Sweeny, 340-ac tr, GH&SA RR sur, 11 mi sw San Antonio, sp. Woodward & Hardie's R. W. Debilbies 1, 4850 ft sl, 330 ft el of John W. Debilbies sur, mir for Austin chalk test.

BROOKS COUNTY—California Co.'s B. Garcia 1, tr No. 3 Las Mestinas de Gonzalina Gr, Alta Mesa dist, coring 6844 ft. Nordan & Morris & Jim Nash's Wm. Singer 1, sec 312, Alta Verde, dr 622 ft. Pedernal Oil Co.'s Wm. Singer 1, nw¼ sw¼ sec 436, Alta Verde, sd 920 ft.

CALDWELL COUNTY—J. J. Elam et al's Francis-Brown-Cochran 1, W. F. Young sur 5 mi e Luling, sd 27 ft. W. C. Jennings & Whittington's McMahan 1, James Pinchback sur, se Lockhart, 5-3/16-in csg at 1995 ft, acidized with 2000 gals, td 2343, washing and bailing showing O&G. W. W. Lincoln's W. Branyon 2, 20-ac tr, Dillard Cooper sur, Branyon, 2082, set 5½-in csg 1875, top chalk 1872, woc. Odgen & Reed's Mamie Barber et al 1, 65-ac lse, Squire Damon sur, 5 mi nw of Dale, td 2004, comp 160 bbls on pump, 5-in csg 1819 ft.

CALHOUN COUNTY—Continental's Vandenberg 1, sec 12, blk "H" Pedro Garcia sur, 1 mi north of other heaving shale wells, Seadrift prospect, spudding. Humble and Plymouth's P. H. Welder 2, 1937.6-ac tr, J. M. Rios sur 2 mi n of Heyser, sand 5452-58 ft, cap 5458-59 ft, sand 5459-66 ft, dst 5446-66 ft show 350 lbs 120 ft oil, mud and dr fluid 10 min, ream and dst 5459-66 ft show 240 ft oil, oily mud and dr fluid 15 min, cored ahead to 5474, dst 5458-74, rec 125 lbs pressure, 15 min abt 2000 ft fluid when first joint was broken off, test sprayed oil for 5 min in last 6 thribles was 400 ft 32.8 grav, and 150 ft mud, sand, oil and fresh water, td 5474, set csg on bottom, pref 5465-70, comp potential gauge of 124.8 bbls day, 7/64 ch, cp 2125 lbs gas-oil ratio 1 to 15, opens new field. Hilton & Miese's J. Brundrett 1, in Wm. Little sur, reinstated, sd 192 ft, to move in materials.

DEWITT COUNTY—Southwestern Dev Synd Ltd's W. L. C. Poetter 1, 590-ac tr in Obed Marshall sur, 1320 ft w Slick field discovery well, lcn. Universal & Gillespie's Schubel 1, C. Fitzgerald sur, abt 2 mi nw Yoakum 1370 ft, faint oil show.

DUVAL COUNTY—Atlantic and Darby Pet. Co.'s J. F. Welder 1-F, sec 552, 1 mi w discovery well Loma Vista field, td 2751, sd, 3 attempts to make dst of sand 2732-44 failed. Conservative Oil Co.'s DCRC 1, 330 ft sl and el of nw¼ sur 51, sw of Gov't Wells field, sp and sd laying water line. Gifford Oil Co.'s A. S. Rooch 1, 990 ft sl, 2970 ft el sur 200, lcn. G. E. Glasscock's Milano Land & Garden Co. 1, sur 87, 6 mi se of Gov't Wells, td 3345, sand 3271-3280 tested 1800 ft sw 20 min dr ahead. Frank J. Gravis et al's Gravis et al 1, sec 250, 9 mi w San Diego, dr 5045 ft. Kepley Prod Co.'s C. D. Sevier 1, sur 71, Santa Rosalia Gr, 7 mi nw Driscoll field, td 3410, set 5½-in csg 3233 ft, perf 3165-71 with 10 shots, now sd waiting on new swabbing machine abt 600 ft fluid in hole. Marzo Oil Co.'s E. R. Hagist 3, sec 269, 1 mi ne Eagle Hill, dr 1820 ft. M. D. Mastin's D. Ruiz 1, sur 128, 1 mi w Hoffman field, dr 2100 ft. Rio Bravo Dr Co et al's W. R. Peters 1, 160-ac lse, sec 397 J. H. Gibson sur 2 mi e Kohler field, td 2898 making dst. Santa Clara Oil Co.'s R. Serna Jr. 1, sw ¼ sec 521, 3 mi e Loma Vista, sd for water 2650 ft. Shell's J. F. Welder heirs 1, 80-ac lse, sec 103, s offset Alta Vista discovery well, td 2345 ft, lost hole and skidded 50 ft e for new start. Smith & Hamill's M. C. Hubbard 1, sur 69 one mi s of Loma Novia field, abd 3024 ft. Stanolind's Ira G. Yates 4, sec 560, ½ mi s discovery well, Labbe field, dr 2200 ft. J. T. Stover's W. J. Hester 1, nw¼ sec 47, west outpost Gov't Wells, dr 2000 ft. Texas Co & Ohio's DCRC 2-B, 330 ft sl, 2800 ft wl sur 193, w of Sarnosa field, lcn. Windsor Oil Co.'s W. R. Peters 2-B, 990 ft sl and 330 ft el sur 34, 2 mi n Kohler field, still ru.

FAYETTE COUNTY—Ben G. Barnett's Sandy McKinnon 100-ac tr, Adam Zumwalt League, 10 mi nw Flatonia, td 3410 ft, cored shale 3405-10, going in for another core.

FRIO COUNTY—Amerada's Halff & Oppenheimer 8, B. J. Gilman sur Pearsall, td 3926 ph to 3912, woc and wo standard tools; W. H. Smith 2, 1476-ac tr and J. V. Mason sur No. 322, Pearsall, dr 5136 ft. T. Davis et al's Halff & Oppenheimer 1, J. D. Clara sur No. 336, 1 mi ne Pearsall deep production, sd 5433 ft, top chalk 5330, csg 5337. Midland Oil Co.'s San Antonio Joint Stock & Land Bank 1, 60.8-ac tr, J. C. Woodward sur No. 2, 1 mi s of Pearsall townsite, to deepen from 4069 ft. Termo Co of Texas' A. L. Arp 1, 102-ac tr, Blair sur 4000 ft w Pearsall prod, dr 2913 ft in sand and shale.

GOLIAD COUNTY—Keystone Royalties Co.'s C. B. Wood 1-A, 10,500 ft sw and 3229 ft se of n/cor of Rios sur, 3 mi e Berclair, owdd, td 6702, ru to wo.

GONZALES COUNTY — O. M. Owensby et al's H. B. Steen 1, N. M. Bane sur, sd 2135 ft. Tull et al's Boska 1, 61.2-ac tr, B. McClure sur, sd 1956 ft.

GUADALUPE COUNTY—J. E. Clark's E. W. Williams 1, Green DeWitt sur No. 13, 4000 ft sw S Darst Creek, top Austin chalk 2358 ft, dr 2509 in Eagleford, set 6⅝-in csg at 2357 ft. Clark & Weinert's Anderson 1, Green DeWitt sur No. 11, 6 mi s Kingsbury, td 2115 ft in chalk, lost slips, sd/tr at 2110. Louis Crouch's J. Getzke 1, J. D. Clements sur, Zoboroski, td 2313 ft in chalk, comp IP 42 bbls 8 hrs ¼ choke, sand 2297-2311 ft. J. Getzke's 2, 150 ft wl of 188-ac tr, 330 ft n No. 1 J. D. Clements sur, lcn. Frank Zoboroski 1, 70-ac tr, J. D. Clements sur, Zoboroski, td 2722 ft, made 3000 bbls sul/water from Edwards lime pb to 2210 ft in chalk, sd. Eickenroht & Gallagher's O. H. Jahns 1, 840-ac tr, Green DeWitt sur, 3 mi sw South Darst Creek, dr 3134 ft in Buda, top Buda 3089 ft. A. D. Locke's J. S. Slaughter 1, 105.3-ac tr, Cyrus Campbell sur, 1 mi nw Staples, temp abd 1050 ft. W. J. Walton et al's W. F. Krueger 1, H. Branch sur, just n Zoboroski area, setting 7-in csg at 2170 ft, td 2178 feet.

HIDALGO COUNTY—Gerald O&G Co.'s Nelson Mortgage Co. 1, blk 38, lot A La Blanco sub, 4 mi s city of Donna, dr 4400 ft. Gulf States Oil Co.'s J. C. Engelman 3, lot 3, blk 70, Las Mestinas Gr, 700 ft e of Mestinas field disc

well, gas sand 6265-73 ft, sand with light show of oil 6706-29, with oil show 6743-60, set 7-in csg 6764 after running Schlumberger, woc. Maxwell-Mundy-Morris' Southland Dev Co (Hidalgo County Water Control & Impr Dist) 2, lot 11, blk 20, Alamo Sub, Alamo Gr, 4 mi s Alamo, td 725 ft, perf csg 650-56 ft, bailing, slight oil show, sd. Quintana Pet Corp.'s John C. Engelman 1, lot 10, blk 94, La Mestinas Gr, 4 mi se Mestinas field, dr 890 ft, hard sand 8565 showed gas. Dayle L. Smith Oil Co.'s Fairbanks & Young 1, blk 44, porc 46, Reynosa Juris, 4 mi e Samfordyce field, dr 1862 ft. Union Sulphur Co.'s ARGL & I 7, tr No. 2309, blk 59, 4000 ft e Mercedes field, td 7608, 5-in csg 7530 swabbing through perfs 7540-49 ft sd for orders after failing to swab or flow through perfs. ARGL&I Co 8, lot 2120, blk No. 87, N. Capisalle Dist., n Mercedes field, td 7822, 5-in csg 7822, woc; ARGL&I Co. 9, Farm tr 2268, blk 59, N. Capisallo Dist. ½ mi e Mercedes disc well, coring 6810 ft. Yates McCurry's Southland Dev Co.'s 1, lot 13, blk 24, Alamo sub, 2½ mi s of Alamo, sp and sd.

JIM HOGG COUNTY—French Oil Corp.'s J. Vela Pena & Bros, (E. Rodriguez) 2, lots 18 and 19, sur 579, 5 mi nw Randado, td 1636, sand 1598-1605, dry and abd, will move east for another test. Knode et al's J. C. Saunders 1, corners of blks 18, 19, 30 and 31, sec 17, R. Holbein sub, sh 3, Las Animas Gr, dr 1500 ft. S. L. Miller Oil Co.'s Yeager 2, blk 6, sur 30 abd 3554 ft.

JIM WELLS COUNTY—Gist & Graddy's B. W. Owens 1, nw Bentonville field, Poitevent sur, sp and sd. R. A. Graddy's F. Bennett 1, lot 87, sec 76, Holdeman sub, 2 mi w Premont field, sp and sd. Houston et al's E. A. Hawkins 2, blk 11, Putnam sub, San Diego Gr, ½ mi San Diego field, otd 6301, pb 3500 ft, dr 6480 ft, tested sw at 2960 ft. E. M. Jones' R. Adams 1, Waldron Oil & Gas sub of Robert Adams Ranch, 1½ mi w of town of Alfred, mim. La Jita Corp.'s W. E. Pope 1, sec 20, mim. Stanolind's Frame & Bowers 1, sec 14, King Ranch sub, one mi n disc well, lcn; J. J. Thompson 1, sec "A" King Ranch sub, 150-ac tr, lcn; E. W. Raney 1, ne sec 16, King Ranch sub, w offset disc well Bentonville field, bldg dk; J. E. Saim 1, sw sec 18, Kink Ranch sub, n offset disc well Bentonville field, ru. Texon Royalty & Lucey Pet. Co.'s Leona Dodd 1, sec 15, King Farm lots, nw offset disc well Bentonville, dr 4747 ft. Joe E. Walsh's W. D. Wade 2, lot 2 blk "C" Bode sub, Sandia area, sd 1200 ft.

KARNES COUNTY — DeGraffe & Reele's Cochran 1, McConnell League, 5 mi ne Riddleville, ru and sd. Hickman et al, R. L. Barnett 1, beginning at the s/cor of Alex Hunter sur, thence ne along sur line 6900 ft, then nw at rt/a 1300 ft, mim. Worth Oil Co.'s E. Hysaw 1, 1069.8-ac tr, Don Erasmus Seguin Gr, w of Kenedy, dk.

KERR COUNTY—Auld & Evans' I. R. Heffner 1, sec 13 BS&F sur, 25 mi nw Kerrville, dr 1890 ft black shale. Eastland Oil Co.'s Jeff Love 7, J. Martinez sur, sec 1594, Love Ranch area, td 2432 ft, abd. Evans & Edminston's Will Auld 1, sec 1592, 418-ac tr, temp abd.

KIMBLE COUNTY—Dr. B. R. Thomas' Rust 1, sw sec 47, BS&F sur, 13 mi nw Junction, lcn.

KLEBERG COUNTY—McCord & Daybault's Killam 1, lot 7, sec 53, DT&I sub, 5 mi se Recardo, lcn.

LA SALLE COUNTY—Davenport & Talbot's G. Watkins, sur 103, 25 mi e Encinal, sd 2830 ft. Kennedy & Johnston's Gilmer & Wildenthal 1, 330 ft nel and nwl of 140-ac tr in sur 283, mim. Paul Meaders & Adair et al's Reed 1, sec 136, T. Conlan sub, 15 mi e and 10 mi s of Cotulla, fsh for ds 2792 ft.

LAVACA COUNTY—J. D. Aguier et al's No. 1 A. A. Staffa, W. R. Hensey sur, 5 mi s Schulenburg, sd 2738 ft. Goods & Mayton's M. Schaeffer et al 1, 481-ac lse, W. R. Hensley sur, lcn.

LIVE OAK COUNTY—Dirks Bros.' A. Troell 1, 80-ac lse, Leal sur, 5½ mi ne Geo West, abd 3931 ft. George West Est 1, 1361 ft sel, 340 ft nel of 80-ac blk, Geo West, 1 mi n townsite, ru. R. H. Feltner et al's John T. Carter & Bros. 1, sec 319, T&T Ry Co sur, sw portion of county, td 3466 ft, set new whipstock at 2818 and dr in hard rock at 2920 ft. Inter-Allied Pet Corp.'s Aetna Life Ins. Co. 1, J. Poitevent sur, 49.47-ac tr, 6 mi ne Dinero, dk wo rig. Odgen & Reed's D. C. Reed 1, Clegg Ranch, sw part of county, dk and sd. T. T. Quinn's E. Terrell 1, J. Houlihan sur, 1½ mi ne Whitsett, sd 1080 ft. Windsor Oil Co.'s B. E. Stolte 1, center tr 9, J. Ingram sur, Ab-261, bldg dk.

MAVERICK COUNTY—Thomson & Streeter's Joseph Wipff 1, sec 18, 7 mi w Chittim field, 10 mi n Eagle Pass, sd 220 ft.

McMULLEN COUNTY — Aransas Oil Co.'s Ruckman 2, sur 69, 13 mi sw Wentz, dry and abd 1350 ft. John F. Camp Dr Co.'s C. E. Byrne Est 3, 206-ac Byrne tr, Geo. Pittuck sur w of Calliham, td 500 ft, killed and prep to dr ahead. Climas Oil Co.'s H. L. Lark 1, blk 96, E. W. B. Schrugham sur, ne Calliham field, sd 1039 ft. Dan Culver and G. C. Richardson's Wm. Fehler 1, G. Pittuck sur, w Calliham, lcn. Daybault's Matula 1, 100-ac James Garner sur, 2½ mi sw Calliham, sd 1018 ft. Charles A. Hall No. 2 Claunch, 200-ac tr, M. Hely sur, ½ mi s Calliham sd 967 ft. R. J. Hill et al's Richardson 1, sur 158, 15 mi sw Tilden, sd 595 ft, corrected depth. Humble's Rhodes 1, sec 17, lcn abd and replaced by lcn in sur 78; D. W. Rhodes 1, 330 ft nl and el of sur 78, s offset disc well, lcn. Ranier Oil Co.'s Hagist 1, 330 ft sl and wl of se sur 25, mim. Reliance and Santa Clara Oil Co.'s Shiner Est 1, nw w½ sec 80, Shumway sub, ru. V. G. Schimmel's E. R. Hagist 1, sw sec 108, ½ mi s Loma Alta field, dr 1470 ft. Whisenant & Trenchard's Roos Bros 1-A ne sec 60, 1¼ mi sw Magnolia Kincaid 2, lcn.

MEDINA COUNTY—Frank A. Brown's Mary Winn 1, John Ward sur td 60 ft, set sur csg and sd. R. S. Bynum's Melton 1, 160-ac tr sur 14½, lcn. W. C. Campbell et al (Ed Falvey et al's) McMenemey 1, sur No. 331, G. Pettuck sur, 4 mi se Devine sd 2892 ft. N. C. Johnson's Taylor 1, 320-ac tr sur 136, lcn.

NUECES COUNTY—Paul Benedum et al's Page Bros 1, 330 ft nl and el of s 50-ac share 2, Geo. Franks sub, 3300 ft w of prod owdd, ru to test 5800 ft. V. L. Blanchard's T. H. Isensee 1, blk 8, R. Shaeffer lands sub, 1½ mi w Clarkwood townsite dk. J. T. Cox's John Harvey share 11, Harney lands. Georgia Farias Gr, 2½ mi se Callahan, dr 800 ft. Tom Graham & Republic Nat Gas Co. & Whelan 1, 40-ac lse, Villareal sur, Saxet Hgts, td 5254 ft, comp through perfs 4058-60, equalized pressures of 1450 lbs, gas well. M. F. Hurlburt's J. C. Phillip 1, center lot 9, 20-ac tr, sur 48, Floud Bluff Encinal Garden Tracts, 9½ mi se Corpus, dr 5768 ft. W. P. Hinds Edwin Flato 1, center blk 8, sec 107, 1½ mi sw Clara Driscoll field, dr 3195 ft. O. W. Killam's Betty Ellich 1, 86.28-ac tr, sec 109, Pauls sub, 4000 ft sw Clara Driscoll field, running electric formation test 3817, cap 3811-13, sand 3811-17 ft, td 3822 ft in shale, 7-in csg set on bottom, wocs. La Jita Corp.'s Richard King Est. 2, sec 24, King Ranch sub, one mi sw King Ranch gassers, 2 mi ne Bentonville discovery, temp abd 6003 ft. H. M. Reed's Katherine Quinn 1, 19.6-ac tr, Villareal sur, about 3300 ft w of Saxet Hgts prod, td 4117, set csg on bottom, ran electric formation test, pref 4069-73, made 45 bbls plo first hour then went dead, made gas, re-cementing perfs. G. M. Richardson's Wm. Gerhardt 1, 208.65-ac tr, sec 79, Geo H. Pauls sub, A. F. de La Fuente sur, abt 2½ mi ne Agua Dulce field, mir. Southern Minerals Corp.'s Mrs. M. P. Masten 1, 124.32-ac tr, G. Frank sur No. 416, Saxet 1000 ft n 5800-ft prod, sand 5803-5824, dst show 2000 ft plo, 260 lbs pressure, set 7-in csg 5814 ft, comp no gauge; Rand Morgan 2, lot 42, Artemus Roberts sub, AB&M sur, sec 411, Saxet, 9200 ft nw 5800 ft prod, ru. Terminal Oil Products Co.'s R. V. Thurman 1, sw¼ sec 10, Flour Bluff Garden Tracts, Rincon del Oso Gr, mir.

SAN PATRICIO COUNTY — Benedum & Trees' Mrs. E. H. Welder 2, sec 19, Welder Ranch sub, 3½ mi ne Sinton, td 627 ft, washing over stuck ds; C. V. Jones 1, sec 65, Geo H. Pauls sub, Coleman-Fulton Pasture Co Lands, 3 mi e White Point field, 4½ mi nw Portland, dr ahead fr 6113 ft. C. B. Bunte's W. C. Mayfield 1, tr 11, Roos sub, 2 mi n White Point field, ru. Esnes Oil Co.'s (Geo E. Smith) J. E. Britton 3160-ac tr, sec 6, blks 7 and 8 2nd sub Taft Farm lands, Taft, td 4015, sand 4009-15, setting csg, woc. Joe Lundin & Rowan & Hope's Mrs. E. H. Welder 1, 330 ft nl and wl of sw¼ of sec 20, Welder Ranch sub, 2½ mi sw St. Paul, lcn. Portillo Oil Co.'s E. H. Welder 1, 2333 ft nl, 466 ft el sec 5, Welder Ranch sub, lcn. Shell Pet. Corp.'s G. W. Pullin 1, sec 1, second addition Taft Farm lands, Taft, td 4920 ft, prep rerun screen after cutting 5 more ft of oil sand. Willis Storm's Nancy Hobbs 1-A, 50-ac tr, M. P. J. & N. Delgado sur, sd 7004 ft, heaving shale, abd. Texon Dr. Co.'s R. L. Rambo 1, sec 35 fourth addition of Taft Farm lands, 1/3 mi e of s end of field, td 5654, now under control and capped, flowed considerable oil through bleeder valve in manifold used to cap it, will set screen and run tubing under pressure.

STARR COUNTY—J. F. Anderson's Yzaguirre 1, 139-ac tr porc 79, dr ahead 950 ft. J. J. Currie's Y. G. Garcia 1, sh 7-B, porc 71, 16 mi nw Rio Grande City field, abd 860 ft. Porter Evans' SCCC 1, beginning at State Highway No. 4 where it crosses the wl porc 89, thence s along wl porc 89, 13,000 ft thence e at rt/a 500 ft to lcn. Killam & Staggs' S. D. Ricaby 1, 150 ft s Highway 4, porc 83, Carmargo Juris, 3 mi e Rio Grande city field, fsh for ds at 1556 ft. Larkins & Warr's Kelsey Bass 1, lot 8, Coastal sub, porc 87, Barbacoas area, dr 820 ft. Ed Leach's Wood Est 1, 2100 ft n Rio Grande, porc 84, 3 mi se Rio Grande City, td 2740, running third Schlumberger test. St. Marys O&G Co.'s O'Shea (Gonzales) 1, 450 ft nl, 850 ft wl sh 65, porc 71, n of Roma dry and abd 510 ft. Otto W. Woods H. P. Guerra 1, lot 35, Conroe sub, porc 50 Mier Juris, dr 140 ft.

TRAVIS COUNTY—Albrecht & Brinkrueger Sr.'s M. C. Swenson 1, 75-ac tr, L. Kimbro League, sec 5, Kimbro area, dry abd 1280 ft. W. F. Johnson's Eliha Berry 1, center lot 1, lot 14, Granview sub, division B, city of Austin, lcn. Sal-Mar Oil Corp.'s P. Carlson 1, M. W. Smith sur, 4 mi n Kimbro, lcn.

WEBB COUNTY — French Oil Corp.'s S. Benevides 1, sec 2254, 3 mi n Oilton, lcn. Illinois Pet Co.'s J. H. Kirkpatrick 1, se/cor of nw¼ of sec 16, CCSD&RGNG RR sur, nw of Lopez field, ru. W. H. Vernor Tr's Jefferies Ranch 1, blk 13, sec 1454, 30 mi nw Laredo, dry and abd 1500 ft.

WILLACY COUNTY—Shell's Yturria Land & Cattle Co. 1, most southerly se/cor of sh 64, San Juan de Carritos Gr, La Sal Veja prospect, dr 4770 ft.

WILLIAMSON COUNTY — H. F. Goff's Charles Patschke 1, 100-ac tr in Foley sur, 2 mi se of Thorndale, dry and abd 1227 ft. James H. Holdeman et al's Amor Forwood 1, 160-ac tr, H. T. & B. sec 4, sur 14, dr 960 ft, shale. Fred Hughes' M. Bachmeyer 1, 1000 ft el, 700 ft sl of C. C. Browning sur No. 82, 12 mi se Taylor, sd 265, shale. Lemmon & Fuchs' Ryals 1, 766 ft swl along nwl from ne/cor and 466 ft se of nwl of R. W. Ryals 102-ac tr in J. West sur, 10 mi se of Taylor, dry and abd 850 ft. W. H. Moody's J. V. Stiles 1, 525 ft nl and el of 230-ac tr in J. Bevil sur, lcn.

WILSON COUNTY—Otto Hierholzer's E. M. Hierholzer 1, R. Salinas sur, 12 mi sw Floresville, lcn. A. G. Reimenschneider's Lon Harrell 2, 209-ac tr Manuel Baerrera sur, 5 mi s of Floresville, td 708, sand 699-703, dst 695-703, 15 min, hole flowed water and mud.

ZAPATA COUNTY—Dan Auld & Oklahoma Co. of Texas' J. M. Sanchez 1, blk 37, sur 9, Borrego Gr, north end of county, dr 3019 ft. Ivan Howard et al's Y. Martinez 2, blk 1, sur 241, dr 290 ft. George Buck's Haynes 1, 200 ft sel, 1520 ft swl blk 4, A. D. Haynes sub, Comitas & Villa Gr, ru. R. A. Mitchell's P. Bustamante 1, share 32, Fansler Partition, Comitas Gr, Escobas area, sp. J. J. Perren's Uribe 1, blk 31, Perren sub, sd 485, San Ygnacio sub, Borrego Gr. 12 mi ne San Ygnacio, prep to sp.

ZAVALLA COUNTY—Bay Oil Corp.'s Nat'l Bank of Commerce 1, sec 43, blk "A", AB&M sur, 16 mi se Batesville, dr 4675 ft. W. L. Bridges' E. B. Flowers 1, sec 19, blk 1, I&GN RR sur, sd 450 ft. Frank Buttram et al's Whitecotton 1, B&M sur No. 1 sd 4250 ft with broken drive shaft. Leona Oil Corp.'s George West 1, C. Bustillo sur No. 1 dr 5892, top chalk 5760 ft.

WEST TEXAS

ANDREWS COUNTY—Grisham-Hunter Corp's Ratliff-Bedford 1, c nw¼ sec 24, blk 73, PSL sur, mim. Humble O&R Co.'s R. M. Means 7, near c se se sec 15, blk A-20, PSL sur, top anhydrite 1866 ft, top salt 1914 ft, dr 3350 ft.

BREWSTER COUNTY—Floyd C. Dodson et al's Texas American Synd. 1-A, c ne ne sec 66, blk 10, GH&SA Ry. sur, deep test, elev 4228 ft, dr 1850 ft.

COCHRAN COUNTY — Honolulu Oil Corp-Cascade Pet. Co.'s T. B. & R. F. Duggan 1, c labor 13, league 55, Oldham County School Land sur, td 232 ft, sd for rotary.

CONCHO COUNTY—Maverick Oil Co.'s Jim Rice 1, sec 18, H&TC Ry sur, blk 70, elev 1887 ft, top Strawn 1603 ft, dry and abd 2424 ft after shot. Walter C. Nelson et al's Jim Rice 1, c nw sw sec 13, blk 70, H&TC Ry sur, elev 1975 ft, ur 1550 ft. John W. Westbrook Co.'s C. C. Ledbetter 1, sec 2, blk 65, H&TC Ry sur, A-1673, elev 2000 ft, sd for cas, td 2560 ft.

CRANE COUNTY—Big Basin Pet. Co.'s Jax Cowden 1, nec nw ne sec 77, blk "X", elev 2456 ft, top salt 548 ft, sd 2602 ft. Clark-Cooper & Smith's A. P. Jordan 1, nec 160-ac lse, sec 12, blk B-22, PSL sur, lcn. A. R. Eppenauer and A. H. Livingston's Livingston 1, sec 13, blk 6, H&TC Ry sur, Ordovician test, lcn. Gulf Oil Corp.'s W. N. Waddell et al 2, c ne sw sec 18, blk B-21, PSL sur, Ordovician lime test, elev 2620 ft, top sand 1620 ft, dr 2615 ft; M. B. McKnight 2, rur. Gulf & T. B. Cranfill's J. B. Tubb 2, nec sec 12, B-27, PSL sur, top anhydrite 455 ft, top salt 500 ft, dr 1950 ft. Humble's J. B. Tubb 2, c se nw sec 11, blk B-27, PSL sur, top anhydrite 400 ft, top salt 630 ft, cem 7-in cas 4284, td 4375 ft in oil pay. Loffland Bros et al's J. B. Tubb-Gulf 1, c nw¼ sec 9, blk B-27, PSL sur, elev 2540 ft, top anhydrite 428 ft, salt series 495-1285 ft, top brown lime 2478 ft, sd 4510 ft; Tubb-Gulf 2, sec n½ sec 9, dk. John I. Moore et al's T. C. Barnsley 1, c sw sec 43, blk 32, PSL sur, Ordovician lime test, elev 2472 ft, top anhydrite 500 ft, top salt 680 ft, top brown lime 2505 ft dr 4340 ft. Riden and Pershing's N. S. Thaxton 1, e¼ sec 2, W. T. Wilkenson sur, lcn. Sinclair Prairie and unit members' J. B. Tubb-California 1, sec sec 3, blk B-27, PSL sur, elev 2540 ft, est 3 bbl pumper at 2962-3164 ft, running formation tester, td 4400 ft. L. R. Stroud et al's J. Mosley 1, sec 4, blk 31, H&TC Ry sur, elev 2373 ft, top anhydrite 525 ft, top salt 820 ft, sd 1901 ft.

CROCKETT COUNTY—John I. Moore et al's A. C. Hoover 1, sec sec 4, blk "FF", B&B sur, dr 915 ft.

JEFF DAVIS COUNTY—C. M. "Dad" Joiner et al's Jones-Coffield 1, ne¼ sec 8, blk 3, H&TC Ry sur, dr 3865 ft.

ECTOR COUNTY — Grisham-Hunter Corp.'s R. B. Cowden 1, c nw sw sec 10, blk 45, T&P Ry sur T-2-N, lcn; R. B. Cowden 2, c se¼ sec 8, blk 44, T-2-N, T&P Ry sur, mim. W. H. Dunning, Jr., et al's H. E. Cummins 1, nec se¼ sec 33, blk 45, T&P Ry sur, T-1-N, elev 3220 ft, top anhydrite 1440 ft, top salt 1480 ft, top Yates 2760 ft, top lime 3820 ft, saturated lime pay 4254-4257 ft, cem 7-in cas 4155 ft, testing. Gulf's C. A. Goldsmith-Scharbauer 5, ne¼ sec

22, blk 44, T-1-S, mudded off gas, td 4077 ft; Goldsmith-Scharbauer 6, nec nw¼ sec 4, blk 44, T-1-S, elev 3153 ft, top anhydrite 1461 ft, flowed 276 bbls oil natural at 4216 ft, sul w at 4243-4260 ft, pb to 4220 ft. Phillips Pet. Co.-Pure Oil Co.'s Clyde Cowden 5, nw¼ sec 23, blk 44, T-1-S, rig. Broderick & Calvert's Foster 1, nec se¼ sec 13, blk 43, T-2-S, mim. Landreth Prod. Corp.'s Scharbauer 1-B, swc se¼ sec 33, blk 44, T-1-N, dr 2500 ft. Stanolind's E. F. Cowden 1-B, nec sec 14, blk 43, T&P Ry sur, T-2-S, elev 2970 ft, top anhydrite 1720 ft, top salt 1827 ft, top gray lime (est.) 3905 ft, lime pay 4028-36 ft and 4146-52 ft, dr 4265 ft.

EL PASO COUNTY — Tri-State Oil Co.'s Chas. & L. M. Kinkel 1, nec sec 237, S.F. No. 7232, ur 1971 ft.

FISHER COUNTY—Forest Development Co.'s A. M. Dry 1, near c sw se sec 108, blk 2, H&TC Ry sur, elev 2067 ft, tested show gas with water 2980-97 ft, dr 3140 ft. Tide Water and Merry Bros. & Perini, Inc.'s M. Howard 3, nwc se ne sec 180, blk 2, H&TC Ry sur, ur 3316 ft.

GAINES COUNTY—Landreth Prod. Corp. et al's W. H. Kirk 1, swc sw¼ sec 22, blk A-21, PSL sur, elev 3271 ft, top anhydrite 1950 ft, salt series 2047-2725 ft, trace gas 3331 ft, dr 4010 ft.

GARZA COUNTY—M. L. Richards et al's U. U. Post 1, nwc se¼ sec 1232, D. L. Phillips sur, A-938, mim. Grisham-Hunter Corp.-Brown Eagle Oil Co.'s J. R. Sullivan 1, nw¼ sec 3, S. E. Harper sur, A-1118, mim.

GLASSCOCK COUNTY—Fleetborn Oil Corp-Mid-Continent Pet. Corp.'s F. C. Dodson 1, sec sec 13, blk 34, T&P Ry sur, T-3-S, elev 2714 ft, top lime 2332 ft, dry and abd 3247 ft. Bruce Frazier et al's E. Patterson 1, nwc ne ne sec 188, blk 29, W&NW sur, sd 190 ft. Shell Pet. Corp's L. S. McDowell 1, s½ sec 41, blk 34, T&P Ry sur, T-2-S, lcn. M. B. Stanton et al's W. P. Edwards 1, sec nw se sec 11, blk 34, T&P Ry sur, T-2-S, dr 730 ft.

TOM GREEN COUNTY—Spinner Oil Co.'s B. Reed 1, swc sub-div 39, Mayson & Perry sur, sd 2035 ft.

HOCKLEY COUNTY—The Texas Co.'s Bob Slaughter 1, League 38, Zavala C.S.L. sur, lcn.

HOWARD COUNTY—D. C. Reed & C. J. Schmid's Walter Pike 1, c se se sec 24, blk 33, T&P Ry sur, T-1-N, elev 2514 ft, salt series (est.) 950-1615 ft, dr 1930 ft. Southern Oil Corp.'s W. P. Edwards 1, swc sec 32, blk 30, T&P Ry sur, T-1-S, elev 2210 ft, top lime 1730 ft, so&g 2480-90, 2563, and 2740-50 ft, dr 2985 ft in sulphur water.

HUDSPETH COUNTY—Haymon Krupp Oil & Land Co.'s S. J. Thaxton 1, near sec ne se sec 34, blk 74, T&P Ry sur, Tsp 6, dr by tools, td 893 ft. Costello Oil Corp.'s Lawrence S. Costello 1, (1716-ac), swc 152-ac tr sec 36, blk 70, T&P Ry sur, lcn.

JONES COUNTY—Thos. D. Humphrey et al's J. M. Radford 1, nwc sw sw sec 19, blk 16, T&P Ry sur, dr 2365 ft. Ungren & Frazier's H. Woods 1 (587-ac), nwc sec 53, blk 15, T&P Ry sur, dry and abd 2404 ft.

LOVING COUNTY—Mason Oil Co.'s Minnie Kyle 2, nec nw ne sec 17, blk 55, T&P Ry sur, Tsp 1, lcn abd. Porter Rankin et al's W. D. Johnson 1, nw¼ sec 12, blk 57, T&P Ry sur, Tsp 1, elev 2904 ft, top Deleware lime 3119 ft, top sand 3151 ft, testing, td 3214 ft.

MARTIN COUNTY—Woodley Pet. Co.-Kirby Pet. Co.'s F. A. King 1, nwc sw¼ sec 30, blk 35, T&P Ry sur, T-1-S, elev 2667 ft, top anhydrite 1420 ft, top salt 1545 ft, top Yates sand 2195 ft, dry and abd 3660 ft in sul water.

MENARD COUNTY—Wilcox O&G Co.'s Lee Murchison 1, swc sec 158, Abst 1840, elev 2190 ft, ur 2415 ft.

NOLAN COUNTY—N. B. Hall, A. Glenn et al's Georgia Tech 1, sw¼ sec 89, blk 24, T&P Ry sur, elev 2330 ft, sp and sd.

PECOS COUNTY — Dobbs Oil Co.'s J. M. Rooney 1, near c ne ne sec 12, blk 125, T&St. L. Ry sur, elev 3005 ft, top anhydrite 970 ft, dr anhydrite 1725 ft. Marion O&G Co.'s W. Courtney 5, nwc sec 78, blk OW, T. M. Ry sur, lcn. Stanley A. Thompson et al's Elsinore Cattle Co. 1, se¼ sec 53, blk D, GC&SF Ry sur, Ordovician lime test, dr 485 ft. Trans-Texas Oil Co.'s F. M. Gallaher 1, nec nw sec 9, blk 51, T&P Ry sur, Tsp 10, sp and sd; Popham Land & Cattle Co. 1, se¼ sec 235, blk 11, GH&SA Ry sur, sd 550 ft.

PRESIDIO COUNTY—Linderman Bros. Oil Co.'s R. I. Bledsoe 1, swc ne¼ sec 15, blk 351, GC&SF Ry sur, sd 1635 ft.

RUNNELS COUNTY—Golden Pet. Co.-John Castor's H. Giesecke 1, blk 150, sub-div 3, Jas. Hughes sur, sp and sd. Melrose Oil Co.'s Mrs. L. P. Wood 1, nwc 30-ac lse, Willett Holmes sur, No. 100, sd 2926 ft.

REAGAN COUNTY—F. Oyster, R. R. Rhodes & E. R. Bahan's M. H. Chase 1, c ne¼ sec 40, blk 36, T&P Ry sur, T-5-S, dr 2315 ft.

SCHLEICHER COUNTY—Cardinal Oil Co.-Rowan-Nichols Oil Co.'s J. A. Whitten 1, c ne nw sec 35, blk L, TC Ry sur, elev 2353 ft, dr 4310 ft. Mangus Oil Corp.'s Judkins-Spencer (Pure) 1, c sw¼ sec 4, GC&SF Ry sur, blk V-28, or Hooper-Wade sur, blk A, elev 2209 ft, show gas 4350-70 ft, cem 7-in cas 5540 ft, td 5676 ft.

SCURRY COUNTY—J. G. Bristow & R. H. Cantrell's Shannon-Magnolia 1, c nw¼ sec 331, blk 97, H&TC Ry sur, elev 2552 ft, top anhydrite 848 ft, top salt 860 ft, dry and abd, no water, td 3706 ft. C. W. Guthrie et al's T. E. Sorrells 1, sec sec 101, blk 97, H&TC Ry sur, sd 765 ft.

STERLING COUNTY—W. B. Hogan et al's Geo. Richardson 1, sec 110, blk 6, H&TC Ry sur, lcn.

TERRELL COUNTY—F. C. Bates & J. H. Felps' J. H. Felps 1, sec nw¼ sec 5, G. W. Turley sur, blk A-4, elev 2185 ft, sd 5635 ft.

TERRY COUNTY—J. A. Estes et al's Brownfield 1, c se¼ sec 23, blk T, D&W sur, lcn.

WARD COUNTY—C. H. Mahres et al's P. Wilson 1, sec 133, blk 34, H&TC Ry sur, rust.

WINKLER COUNTY—Crafton Oil Co. et al's J. B. Walton-Pure 2, swc ne¼ sec 1, blk B-3, PSL sur, lcn. Atlantic O. P. Co.-Wahlenmaier Pet. Corp.'s Fred Leck 1-B, nwc nw¼ sec 3, blk 26, PSL sur, spd. Wm. H. Dunning, Jr. et al's B. F. Jenkins 1, swc s½ s½ sec 21, blk 77, PSL sur, dk. Gulf Oil Corp.'s Keystone 12, nec sec 10, blk B-3, PSL sur, elev 2963 ft, shot 300 qts nitro at 3380-3500 ft, td 3515 ft, flowed 409 bbls oil and 66 bbls water via tubing; Keystone 13, nwc sec 6, blk B-2, PSL sur, rig. R. H. Henderson et al's J. B. Walton-Humble 1-B, sec sw¼ sec 10, blk 26, PSL sur, elev 2868 ft, top lime 2813 ft, lime pay 3035-3045 ft, sdo; Walton-Humble 2-B, nwc sec 10, elev 2874 ft, top lime 2605 ft, lime pay 3012-3051 ft, flowed 1689 bbls oil 24 hrs via ¾-in choke on 2-in tub. Humble's J. B. Walton 2-C, sw ne sw sec 34, blk 74, PSL sur, dr 2650 ft. Fred Hyer et al's Cowden Cattle Co. 1, c nw¼ sec 8, blk A-56, PSL sur, elev 3082 ft, top anhydrite 1230 ft, top salt 1500 ft, sd 4130 ft. Illinois Oil Co.'s Abilene Central State Bank-Conoco 1, sec sw¼ sec 23, blk 26, PSL sur, elev 2858 ft, top anhydrite 855 ft, top lime 2360 ft, flowed 287 bbls oil and 3,000,000 ft gas initial after shot 540 qts at 2840-3116 ft; McCutcheon-Conoco 1, nwc sw¼ sec 16, blk B-3, PSL sur. C. M. "Dad" Joiner et al's Cowden-Evans 1, near c nw¼ sec 46, blk 73, PSL sur, elev 3203 ft, top anhydrite 1580 ft, top salt 1640 ft, top Yates sand 2930 ft, sd 3335 ft. K. D. Oil Co.'s Pink Mitchell 1, nwc s½ ne¼ sec 23, blk B-10, PSL sur, elev 2814 ft, top anhydrite 1010 ft, top salt 1070 ft, sd 1150 ft. W. L. & E. J. McCurdy et al's W. A. McCutcheon-Pure 1, swc sec 16, blk B-3, PSL sur, elev 2874 ft, top anhydrite 862 ft, base salt 2367 ft, top lime 2435 ft, flowed 1135 bbls and 8,000,000 ft gas initial after shot 330 qts at 2780-2968 ft. Reed & Duffy's John Sealy 1, nwc sec 8, blk "A", GMMB&A sur, lcn. Wahlenmaier Pet. Corp.'s J. B. Walton-Leck 2-C, swc s½ sw¼ sec 3, blk 26, PSL sur, dr 1000 ft. Superior O&G Co.'s M. J. Hill 1, sec e½ sw¼ sec 18, blk 11, PSL sur, elev 2761 ft, top lime 2228 ft, top sand series 2378 ft, sul w 3152-3155 ft, dry and abd. Wahlenmaier Pet. Corp.-Altantic O.P. Co.'s J. B. Walton-Humble 1, sec sw¼ sec 34, blk 74, PSL sur, elev 2874 ft, top anhydrite 1160 ft, top salt 1440 ft, top lime 2640 ft, td 3070 ft, flowed 1800 bbls oil 11 hrs via 2-in tubing.

YOAKUM COUNTY—E. R. Bahan & R. R. Rhodes' Mrs. Alice Henard 1, c sw¼ sec 367, blk D, John H. Gibson sur, mim. Lou G. Stogner et al's Googins-Roosevelt 1, sec ne¼ sec 215, blk D, John H. Gibson sur, spd and sd.

WYOMING

ALBANY COUNTY—James Lake Oil Co. et al's George & Hunt 1, nw ne se 5-17n-75w, ru.

BIG HORN COUNTY—J. W. Bales' Parker 1, csw sw 23-49n-89w, dr 683 ft.

CARBON COUNTY—General Pet. Corp.'s Union Pacific 1, sw sw nw 5-19s-83w, dr 1324 ft.

CONVERSE COUNTY—E. B. Jones State 1, sw sw sw 16-32n-69w, ur 2500 ft.

NIOBRARA COUNTY—Lewis Gokel sw ne 31-34n-62w, dr 320 ft. S. & H. Development Co.'s Olinger 2, cnl sw ne 1-35-63w, dr 1389 ft.

SHERIDAN COUNTY—Sheridan Syndicate's Allison 1-A, sw sw se 15-5n-85w, dr 3070 ft.

WASHAKIE COUNTY—Wyoming Oil & Refining Co.'s Frison 1, nw sw nw 14-48n-91w, dr 1642 ft.

WESTON COUNTY—Conway Oil Co.'s Government 1, se se nw 7-4n-60w, waiting on cement to set around 3½-in tubing to shut off water, td 2305 ft.

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ORIFICE METER
Cochrane Corporation

Cochrane Corporation, Philadelphia, Pennsylvania, announces a new orifice meter to measure flow of fluids through pipe lines. Flow through the orifice flow nozzle or venturi tube sets up a differential pressure which is conveyed by piping to the U-tube manometer and measured in terms of rate of flow.

Features of the new orifice, according to the manufacturer, include direct reading integrator, 12-inch diameter charts, spring wound or electric clock for driving charts and integrator, interchangeable manometer tubes for changing meter capacity, safeguards in high and low pressure chambers to prevent loss of mercury, removable cover plate to permit cleaning of chambers, large float with high buoyancy, throttling bushing to dampen violent fluctuations, adaptation to flush panel or rear mounting, pressure and temperature records on the same chart with flow.

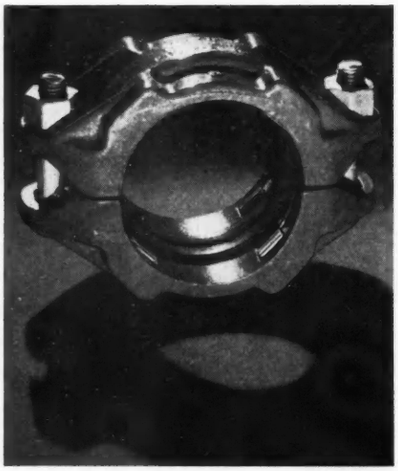
PIPE COUPLING
Gustin-Bacon Manufacturing Company

Gustin-Bacon Manufacturing Company, Kansas City, Missouri, has announced a new coupling that will be marketed under the name of "Rolagrip."

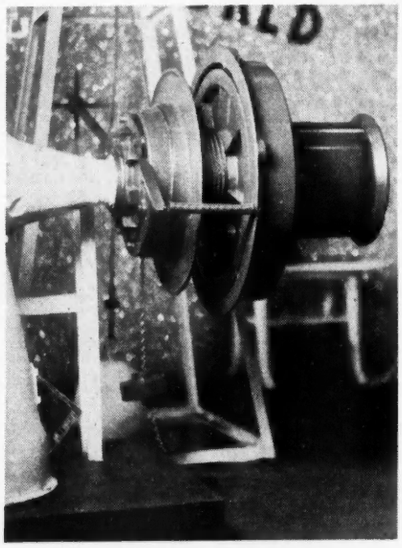
This patented coupling affords a novel and simple means for joining plain and bevel end pipe without special preparation of the pipe ends. Ribbed rollers, in recesses of the coupling housing, grip the pipe firmly.

The recesses within which the rollers operate are proportioned to give play to the normal forces of expansion and contraction, and to permit maximum angular deflection.

The coupling consists of only three parts to be assembled with two simple bolts. No special tools are required for its application. Special preparation or processing of the pipe ends is eliminated. Specially trained men are not required for the making of "Rolagrip" connections.



Rolagrip Pipe Coupling



Hill and Foster Catline Hoist

CATLINE HOIST
Hill and Foster

Hill & Foster, Wichita Falls, Texas, has announced a new hoist designed to permit the use of a steel "catline." The novelty of this hoist is in the automatic brake. This self-energizing brake is desigend to hold the load to the height to which it is raised until it is manually released. It is also designed to be adjusted throughout the life of the brake lining. While the brake is holding the load, the shaft may be stopped and started and even reversed without effect on the load.

The power is applied for lifting by the use of a cone friction clutch. The rated capacity is 10,000 pounds. This item will be ready for general distribution in July or August.

WELDING GENERATOR
Westinghouse Electric & Mfg. Co.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pennsylvania, announces a new welding generator for belted or coupled welding sets based on Westinghouse's recently developed crossfield principle. It is claimed the new generator has a novel control system producing superior arc quality and eliminating rheostat, resistors, meter, reactor, and exciter.

The 200, 300 or 400-ampere generator with a new system of control allows the operator to adjust the generator to give the welding current required before the set is started. This control is accomplished by mechanical means which vary the armature reaction fluxes of the generator. This control is continuous, without steps, and permits minute changes in current adjustment, it is claimed. A polarity reversing switch is provided for instantly changing the polarity of the electrode without changing the cable connections.

The generator is enclosed in a shell of drip proof construction with four solid machined feet.

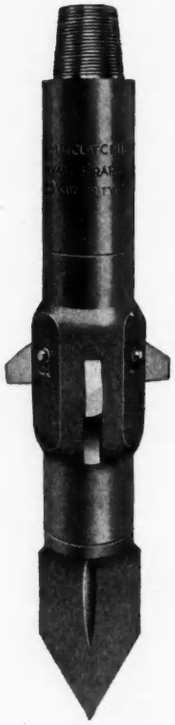
HOT JAW PLIERS
Ideal Commutator Dresser Company

Ideal Commutator Dresser Company, 1525 Park Avenue, Sycamore, Illinois, announces production of "Thermo-Grip" pliers designed principally for loosening soldered joints or for making sweated joints in the new type copper pipes, tubes and fittings.

Wires leading from the pliers may be plugged into any 110-volt lighting line. When so connected they heat the jaws of the pliers rapidly to a white heat. The pliers come equipped with renewable carbon jaws, insulated fibre handles and a switch giving high or low heat.

WALL SCRAPER
MacClatchie Manufacturing Company

MacClatchie Manufacturing Company, Compton, California, announces it has improved the performance of its wall scraper in the past few weeks so as to obtain practically closed circulation until the blades are sufficiently open to a degree that additional weight from the drill stem will fully expand the blades. This feature enables the operator to know for a certainty when the blades are open.



MacClatchie Wall Scraper

WORKING VALVE
Bradford Motor Works

Bradford Motor Works, Bradford, Pennsylvania, announces the B-M-W Tex Type working valves for standard working barrels. Construction of the valve involves many composition rings separated by metal washers. The

plunger portion is a grooved seal plunger, made of rubber and fabric, adapting itself to the tube in which it works.

B-M-W Tex Type valves are made in three sizes—1¾-inch, 2¼-inch, and 2¾-inch for standard working barrels, and also 1½-inch and 2-inch for use in 2-inch and 2½-inch B-M-W Admore liner barrels, respectively.

Catalogs...Bulletins

Water Columns

The Reliance Gauge Column Company, Cleveland, Ohio, announces a new 8-page catalog-folder, giving complete information regarding float-operated safety water columns and containing descriptive illustrations. In addition, the folder contains detailed size and price lists, including technical specifications of fittings, installations, etc., and material on the patented Reliance Monel metal floats, with illustrations of assembly and float tests.

Rustless Steels

Rustless Iron and Steel Corporation, Baltimore, has published an attractive folder describing the corrosion and heat resisting stainless steel products it manufactures.

Recording Instruments

The Brown Instrument Company, Philadelphia, has issued an attractive booklet, "Instruments from the Executive Viewpoint," which will be mailed to interested persons on request.

The company also has ready for distribution a folder describing its potentiometer pyrometers.

Thermometers

American Schaffer & Budenberg Division, Consolidated Ashcroft Hancock Company, Bridgeport, Connecticut, has ready for distribution an interesting bulletin describing its line of utility thermometers and hygrometers.

Beam and Post Assembly

The National Supply Company, Toledo, Ohio, has issued bulletin No. 94, describing its "Pony" beam unit for pumping wells.

A. P. I. Papers

American Petroleum Institute, through the Central Committee on Drilling and Production Practice, recently published an interesting book, "Drilling and Production Practice, 1935." The volume contains papers on drilling and production practice, selected by the program committee from papers delivered at national or district meetings of the Division of Production during 1935. In addition the book contains a bibliography of all papers presented at district meetings during last year.

Valves

Consolidated Ashcroft Hancock Company, Hancock Valve Division, Bridgeport, Connecticutt, has ready for distribution a bulletin describing its new line of forged steel valves for steam pressures ranging up to 1500 pounds.

Drilling Engines

Young Engine Corporation of Canton, Ohio, has published a new catalog, No. 20-W, featuring its complete line of Diesel, gas and gasoline drilling engines. It describes the construction thoroughly with special attention to the new automatic brake, which gives the driller more accurate control of the tools and the reversible transmission with double cone clutches that eliminates gear shifting. Complete data on sizes and models with horsepower rating, torque revolutions per minute, gear ratio, fuel consumption, etc. is also included.

Rotary Hose and Belting

Republic Rubber Company, Youngstown, Ohio, has announced a new booklet "Republic Rotary Hose and Oil Country Belting," which is ready for distribution to those interested. Attention is directed within the booklet to the effect of pulsating pressures and abrasive action of mud on hose, with a brief on belting design and use.

This Week with the Industry's EQUIPMENT SUPPLIERS

Jay Taylor Promoted in Halliburton Organization

Effective May 1, Jay Taylor has been promoted to General Superintendent of Halliburton Oil Well Cementing Company, which is a new post in that organization made necessary by continual growth and expanding activities.

For the past eight years he has been superintendent of the West-Texas-New Mexico-Panhandle Division, with headquarters at Amarillo.

Previous to becoming superintendent he served his time as a truck driver and cementer since the Halliburton Oil Well Cementing Company was organized in June, 1924.

Prior to that, he rough-necked on a drilling rig and attended Oklahoma University, taking a course in Petroleum Engineering.

JAY TAYLOR

Oklahoma Contractors to Specialize Deep Holes

Diesel Drilling Company of Oklahoma City has been formed by Frank Porter, Charles Murphy and Mark Feeney. The company will specialize in the drilling of deep holes.

The entire Diesel-electric rig shown by The National Supply Company at the International Petroleum Exposition in Tulsa has been purchased by Diesel Drilling Company, and will go into service at Moore, Oklahoma. This rig is the largest drilling outfit yet offered to the oil industry and will handle any depth to which the industry has yet gone or likely gill go.

C. R. Cox Elevated By National Tube Company

C. R. Cox, formerly general superintendent of Ellwood Works of National Tube Company, has been elected vice president in charge of engineering and operations of said company, succeeding P. C. Patterson, who was associated with the company for 49 years and who has been, since 1926, vice president in charge of engineering and operations.

Patterson attended the University of Pittsburgh and entered the employ of National Tube Works Company at McKeesport in 1886. He later became draftsman, foreman and then superintendent of the lapweld department. In 1900 he was appointed chief engineer, in 1922 assistant vice president in charge of operations, and in 1926 was elected vice president in charge of engineering and operations.

Mr. Cox was graduated from New York University in 1914, and in 1918 became identified with United States Shipping Board Emergency Fleet Corporation. In 1920 he entered the employ of Pittsburgh Crucible Steel Company at Midland, Pennsylvania, and in 1925 became superintendent and in 1927 manager of Park Works of Crucible Steel Company. In 1930 he was appointed superintendent of the Babcock & Wilcox Tube Company plant at Beaver Falls, Pennsylvania. In 1934 he was appointed assistant general superintendent and in 1935 general superintendent of Ellwood Works of National Tube Company. His office will be in Pittsburgh.

Taubman Supply Company, Tulsa, has started construction of a one-story building on Clinton drive at 69th street, Houston. Cost of the new plant will be about $100,000, it was announced. The plant will be a one-story structure with foundation for additional floors in the future.

$1,000 Prize Offered For Diesel Invention

Inventors with inclinations toward Diesel engines are given encouragement through the offering of a $1000 cash prize for the best Diesel invention submitted during the next 12 months. A perpetual silver trophy has also been offered on which each year's winner's name will be inscribed. The $1000 prize and the Diesel Inventors Trophy will both be given by Ralph Hemphill, president of the Hemphill Diesel Engineering Schools, Inc.

It is reported that this contest is the first one ever made in the Diesel field that offered a cash reward. Cash prizes for inventions in other fields are not new, and many of the improvements in present-day gasoline engines were brought out by similar contests.

It is anticipated that during the next 5 years there will be as rapid development in the Diesel engine field as there has been in the gasoline engine field during the last 20 years. Such being the case the offering of a prize of this value for the most outstanding improvement in the design, accessory or testing equipment of a Diesel engine, will foster the efforts of many engineers and laymen that might not otherwise take an interest in the Diesel.

Squeaks from the Bull Wheel

Improving

Two old maids were in an insane asylum for years, always knitting and knitting.

"Gee," sighed Mayme one day, "I wish some tall, handsome man would wind his arms around me and squeeze me until I gasp."

"Now you're talking sense," from Jayne. "You'll be out of here in a few days."

Bribery as an Art

The captain of a small trading vessel wanted to land some contraband at a certain port. Approaching the customs officer, he said:

"Joe, if I put a ten dollar bill over each eye, could you see?"

"I could not," said Joe. "And if I had one in my mouth, I couldn't speak."

The Block-Like Chip

The teacher was having her trials and finally wrote the mother: "Your son is the brightest boy in my class, but he is also the most mischievous. What shall I do?"

The reply came duly: "Do as you please. I am having my own troubles with his father."

Oil Scandal

Girl: "Could you fix me a dose of castor oil so the oil won't taste?"

Druggist: "Certainly, won't you have a glass of soda while you are waiting?"

Girl: "Oh, thank you," (and drinks the soda.)

Druggist: "Something else, Miss?"

Girl: "No, just the oil."

Druggist: "But you just drank it."

Girl: "Oh, dear; I wanted it for my mother."

A Happy Delegate

Boy: "Say, dad, what does it mean when the paper says some man went to a convention as a delegate-at-large?"

Dad: "It means his wife didn't go with him, son."

Preliminary

Photographer: "Do you want a large or small picture?"

Sitter: "A small one."

Photographer: "Then close your mouth."

Figure it Out

A Scotchman figured in a motor accident and in his anxiety to confine his telegram notifying the family of the mishap to ten words, dispatched the following:

"Bruises hurt erased Ford erected analysis hurt too infectious dead."

Laborious decoding on the part of relatives evolved the following result:

"Bruce is hurt. He raced Ford. He wrecked it. And Alice is hurt, too, in fact she is dead."

Too Much Concentration

"Who was that fat lady I saw you with the other night?"

"That was no fat lady. That was me girl friend! You see, I and me frail were dancing in this dump when suddenly she passes out. So I hollers, 'Air! Air! Give her air!' So what happened! Some bloke from a service station comes running up and slips her thirty pounds."

Missed the Track Meet

Teacher (to wayward Johnnie): Tell me what you know about the Caucasian race, Johnnie."

Johnnie: "I wasn't there; I went to the football game instead."

Quite A Difference

'Arry 'Awkins (just over): "Ow is it the sky is so much clearer in Chicago than hit is in Lunnon?"

Night Hawk: "Oh, we have skyscrapers in Chicago."

Precaution

"Say, what's the idea of wearing my raincoat?"

Roommate: "You wouldn't want your new suit to get wet would you?"

Like Mother

Mrs. Blupe: "Did you see the Smith twins?"

Blupe: "Yes."

The Mrs.: "Don't you think the boy is a picture of his father?"

Blupe: "I sure do—and the girl is a talky of her mother."

Yes, She Knows

Passenger (to lady sitting on his hat): Excuse me, miss, do you know what you are sitting on?"

Lady: "I ought to. I've been sitting on it for twenty-five years."

Evidence to Contrary

In moonshine districts, where the whiskey looks like water and is drunk like water, strange ideas prevail as to what intoxication really is. In a village one Sunday afternoon a man lay in the broiling sun in the middle of the road with an empty bottle by his side.

"He's drunk; lock him up," the sheriff said. But a woman interposed hastily.

"No, he ain't drunk," she said. "I jest seen his fingers move."

Not Much Wrong

Shoemaker: "This is the first complaint we have ever had about this make of shoe. Didn't they fit you?"

MacIntosh: "Aye, they fit me all right, but they're a wee bit tight for my brother on the night shift."

Safety First

"Well, young man, ever been up before?"

"Only as a passenger, sir, but I have watched a lot of—"

"Hump; seems that I get all the novices to teach. But, believe me, I teach 'em. When they's finished my course of instruction, they're not flying through roofs and killing passengers."

"Now, first I'll show you how to handle the stick. Back like this, see? Slow and easy. Always remember, never try to take her up too fast. One accident, and, believe me, you'll never want to get off good old Mother Earth again. That's why I feel kind of proud of my record. For twelve years now I've been training young fellows like yourself, and not one of my pupils ever cracked up an elevator yet."

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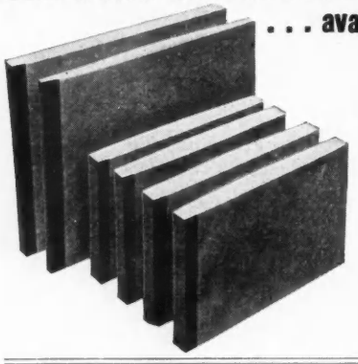

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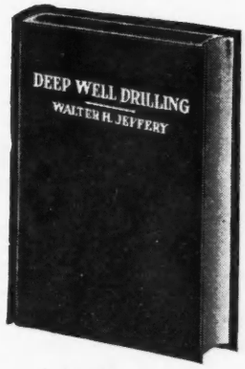

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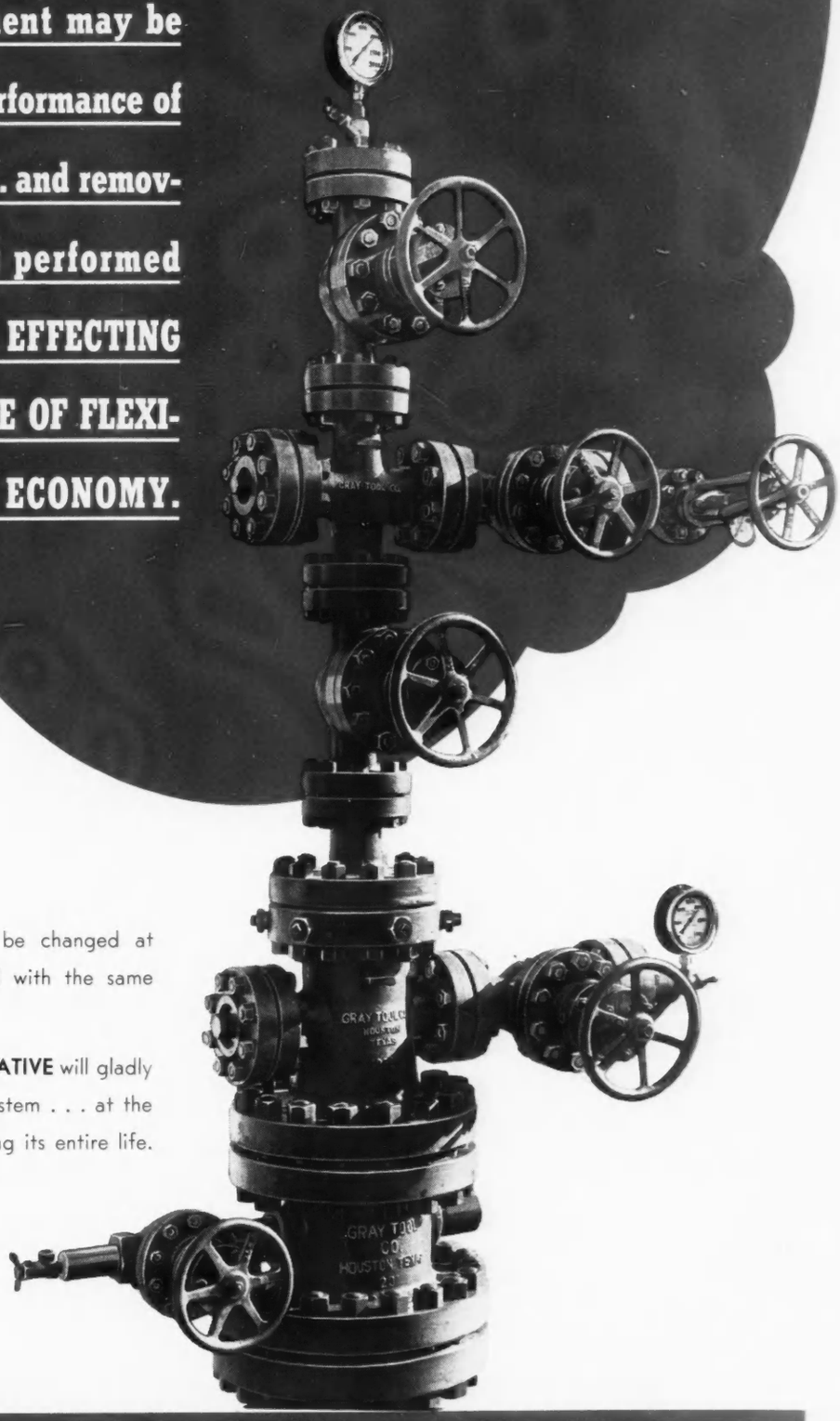

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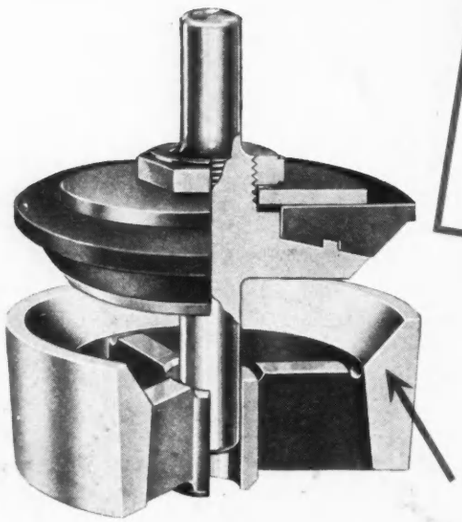

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